The Bennington Regional Plan

Adopted November 21, 2024

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1 INTRODUCTION

The Bennington region lies among the Taconic and Green Mountains of southwestern Vermont. Historic villages are located throughout the rural countryside in the "Valley of Vermont" that runs north and south between the two mountain ranges. One of the unique and historically important characteristics of the Bennington region is the presence of two county "shire towns," Manchester in the north and Bennington in the south. Bennington County is the only county in Vermont with this distinct political geography, represented by two county courthouses, and prominently identified in the well-established "Northshire" and "Southshire" labels that include the two parts of the region. These two areas are different, but the "shires" theme is used in this plan to highlight the unique characteristics of the northern and southern communities and to draw them together socially and economically. The Shires concept helps promote the region's assets to tourists and businesses and provides a valued sense of history and place for residents of the region.

The Bennington County Regional Commission (BCRC) was established by its member municipalities in 1967 as enabled by Vermont statute (24 V.S.A. § 4341). Accordingly, the purpose of the commission is to provide technical assistance to towns and villages and to promote coordination of planning efforts among those individual communities. Thirteen towns, three villages, and one unorganized town, all located within Bennington County, are the municipal "owners" of the BCRC (Map 1-1). Three Bennington County towns (Winhall, Searsburg, and Readsboro are members of the Windham Regional Commission rather than the BCRC. The organization is governed by commissioners appointed by those municipalities, along with representatives of interest groups (including economic development, conservation, housing, transportation, energy, agriculture and local food, local business, and public health) that are elected by the municipal commissioners. There are eleven regional planning commissions in Vermont, coordinating their work at a statewide level through the Vermont Association of Planning and Development Agencies (VAPDA).

In 2016, the BCRC entered into an agreement with the Bennington County Industrial Corporation (BCIC) to provide capacity to that organization in its fulfillment of its obligations as the regional development corporation (RDC) for the Bennington region. This contractual agreement continued until 2020, when the BCIC was formally incorporated into the BCRC and the BCRC was awarded the RDC contract by the Vermont Agency of Commerce and Community Development. Thus, the BCRC is one of only two regional agencies in the state that serve as both the RPC and the RDC for their member municipalities. The merger of BCIC and BCRC has strengthened the agency's ability to address the community and economic development needs of the region.

The BCRC began working on its first regional plan in 1968. That effort involved close cooperation among all of the towns and villages in the region. The final product, reflecting the plans of each individual municipality framed within a regional context, was adopted in 1970. The region has been fortunate to have benefited from this early cooperative planning effort. The fundamental policy basis of the regional plan has not shifted significantly since 1970 and few conflicts exist among the seventeen municipal plans. Subsequent comprehensive plan updates occurred in 1976, 1992, and 2007, with periodic minor updates in intervening years. This plan represents an update of the 2015 Bennington County Regional Plan and the 2017 regional energy plan. The commission plans to engage in the development of a comprehensive new and digitized plan based on extensive public engagement on the heels of this update. The new web-based plan is expected to replace this update in 2026 and will better address issues of livability, equity, and resilience that have come to the fore in our early 21st Century context.

Several regional planning documents, focusing on specific issues and resources, have been produced by the BCRC over the years and have provided the foundation for the regional plan. These include the 2019 Bennington County Cultural Plan, and the 2019 Southern Vermont Comprehensive Economic Development Strategy. A separate multi-town solid waste implementation plan is incorporated by reference in this regional plan update.

The municipal and regional planning and development act describes the purpose of a regional plan as follows (24 V.S.A. § 4347):

> *A regional plan shall be made with the general purpose of guiding and accomplishing a coordinated, efficient, economic development of the region which will, in accordance with present and future needs and resources, best promote the health, safety, order, convenience, prosperity, and welfare of the inhabitants as well as efficiency and economy in the process of development. The general purpose includes, but is not limited to recommending a distribution of population and of the uses of the land for urbanization, trade, industry, habitation, recreation, agriculture, forestry, and other uses that will tend to:*
>
> 1. *Create conditions favorable to transportation, health, safety, civic activities and educational and cultural opportunities;*
> 2. *Reduce the waste of financial, energy, and human resources that result from either excessive congestion or scattering of population;*
> 3. *Promote an efficient and economic utilization of drainage, energy, sanitary, and other facilities and resources;*
> 4. *Promote the conservation of the supply of food, water, energy, and minerals;*
> 5. *Promote the production of food and fiber resources and the reasonable use of mineral, water, and renewable energy resources; and*
> 6. *Promote the development of housing suitable to the needs of the region and its communities.*

In practical terms, the regional plan serves as a general guide for the

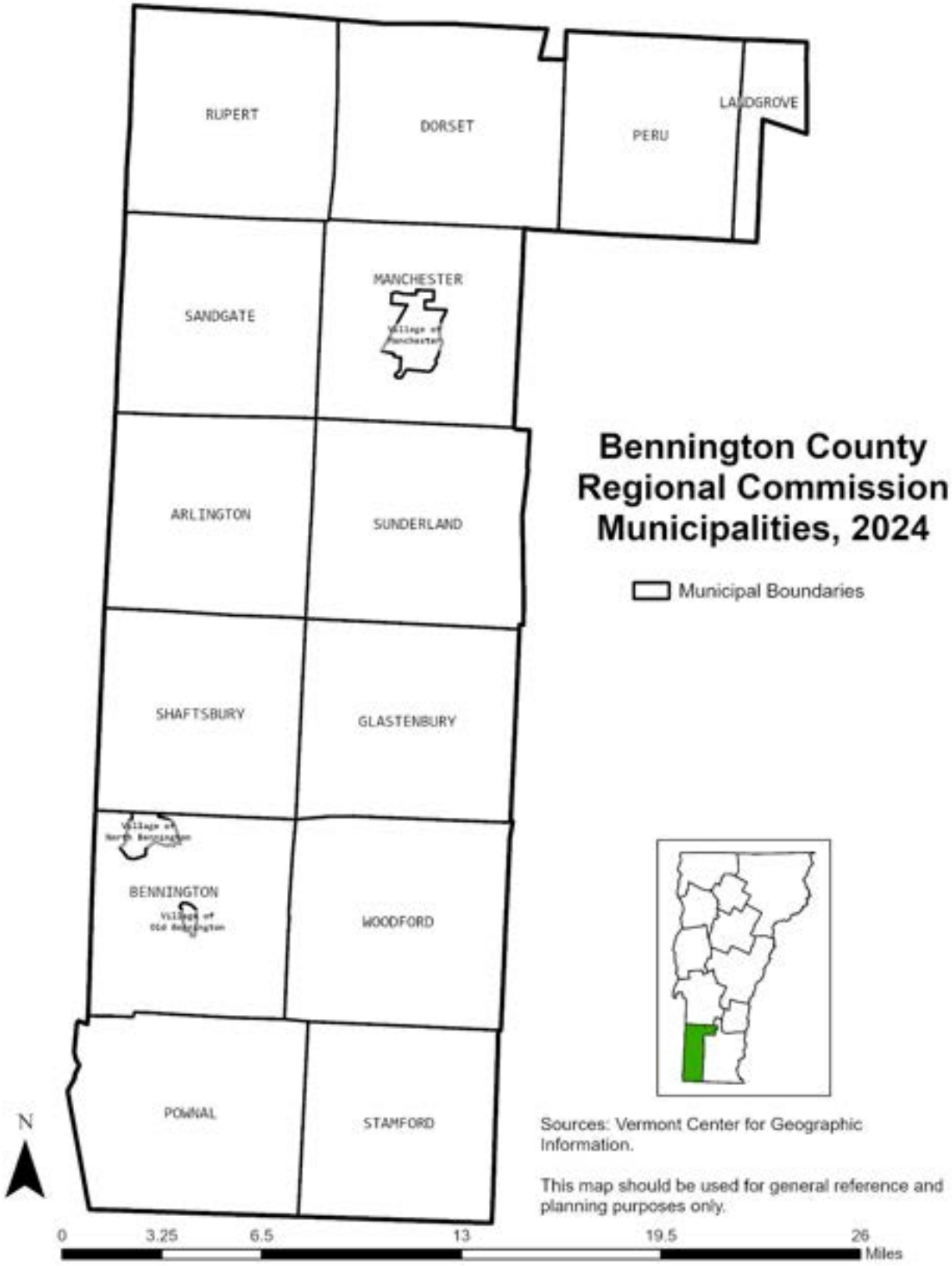
development of municipal plans and helps to ensure that those individual plans are consistent with each other and reflect a regional consensus. In turn, the regional plan may be amended in response to changing conditions and needs identified as municipal plans are updated. By defining specific regional policies and priorities, the regional plan also can be used to assure that state agency plans and projects, and other major public investments, are consistent with the interests of local communities in the Bennington region.

Regional planning commissions are statutory parties to state land use (Act 250) regulatory proceedings and participate in many public utility (Section 248) hearings as well. An effective regional plan ensures that projects subject to those reviews support regional development and conservation objectives. The regional plan also can be used as an important educational and reference document, providing important information about the region, a vision for the future, and practical information about strategies that can help realize that vision.

This plan is organized into three main categories covering the **People, Landscape,** and **Infrastructure** that together shape and define the region. The section on **People** includes separate chapters dealing with the region's history, population demographics, economy, education and childcare, and housing. Chapters on land use, flood resilience, and natural, scenic, and historic resources comprise the **Landscape** section of the plan. The **Infrastructure** section considers the region's transportation systems, utilities, facilities, and energy resources. The unique "Shires" aspect of the region is present as a unifying theme throughout, and there is, of course, some overlap between the various chapters because of the many interrelationships present.

The regional plan should be a living document, used by the BCRC, local governments, state agencies, private developers, and citizens to help shape decisions that support state planning goals as outlined in statute (24 V.S.A. § 4302) through policies and actions that are deemed most appropriate for the communities of this region. Effective implementation of the plan will result in enhanced quality of life for residents by promoting community resiliency, equity, and prosperity; by maintaining and developing welcoming, affordable, safe, convenient, and healthy communities; and by protecting the resources that make the Bennington region an outstanding place in which to live.

Map 1-1. Municipalities of the Bennington Region.



2 VISION AND GOALS

2.1 Vision Statement

The regional plan is intended to provide direction for the region as a whole and for its seventeen unique communities. To be effective, it is important that the plan presents a clearly articulated vision. The following statement is based on aspirations and values that are common to the entire region:

> ***The Bennington region will be a place where all residents have an opportunity to enjoy an outstanding quality of life through an emphasis on its distinctive sense of place. The essential elements of that place include its natural, scenic, cultural, and historic resources; its compact villages and urban centers surrounded by rural open spaces; an active and engaged citizenry; outstanding school systems; efficient and responsive public services; an efficient, safe, and convenient transportation system; a range of housing options that are pleasant and affordable for all residents; and a place where a strong, diverse, and sustainable economy offers opportunities for all residents.***

2.2 Goals

Specific goals provide focus and direction to the policy statements and recommended actions set forth in each chapter of the regional plan. These goals are consistent with the fourteen statewide planning goals set forth in 24 V.S.A.§ 4302.

A. Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside.

Most new growth should occur in these compact centers and be consistent with the historic character and form of those areas. Mixed use development that encourages walking, healthy lifestyles, and efficient delivery of services should be emphasized. Development in rural areas should respect the need to protect important natural resources and scenic landscapes. Dispersed auto-dependent development outside of compact mixed-use centers and in strips along highways is costly, inefficient, and unhealthy, and should be strictly limited. The forest lands in the Green and Taconic Mountains and at other steep, high elevation, and remote locations should remain free from permanent development and be reserved for forest and recreation uses.

B. A vibrant, welcoming, and accessible community where residents feel a sense of belonging and participate in their governance.

Opportunities for all community members to live, learn, work, and recreate, should abound regardless of age, ability, or origin. Addressing the needs of young people to support them to choose the region as their lifelong home should be a particular focus. Providing services and activities for retirees and other seniors should

also be a priority. New residents of all ages and backgrounds should be welcomed into the region's communities integrating into the workforce, education system, governance and civic institutions.

C. A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.

Coordinated development strategies for the Northshire and Southshire that recognize the importance of a diversity of economic enterprises will be important tools for guiding and promoting commercial activity within the region. The use of local resources and assets to support general economic prosperity and sustainable development practices should be prioritized.

D. Outstanding educational and vocational training services that meet the needs of residents and area businesses.

Maintenance of high academic standards and provision of an environment and instructional services that allow students to excel is essential. Efficiency in the provision of these services is essential so that costs to taxpayers are not excessive nor quality compromised. To ensure that regional economic development needs are met, it is critical that close relationships between educational providers and the local business community are facilitated and maintained. Access to higher education through advanced telecommunication systems is critical. Opportunities for active participation by area colleges in local projects through partnerships between colleges and local governments, organizations, and businesses should be pursued.

E. A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.

A physical environment that encourages walking, bicycling, and use of public transportation supports the vitality of downtowns, village centers, and neighborhoods and contributes significant public health benefits. Improved access to intercity passenger rail service, rail freight services, and regional air transport services will provide long-term economic benefits to the region. Prioritizing the development of facilities that support a transition to a vehicle fleet that is powered by electricity and other alternative fuels will also lead to economic and health benefits for the region.

F. Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.

Public investments, regulation, and creative development techniques should be employed, as appropriate, to protect valuable open spaces, air quality, water resources, wildlife habitat, fragile natural areas and critical ecosystems, scenic views, and historic sites, structures, and districts. Utilization of local natural resources should support

regional economic and renewable energy development while ensuring that such development, including any resource extraction, is accomplished in an environmentally sensitive manner. The region's agricultural and forest resources should be conserved and developed in a responsible manner to support economic and quality of life goals.

G. Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.

Conservation should be the principal consideration in energy planning across all sectors. Opportunities for diversification of energy choices should be pursued along with strategies that reduce reliance on fossil fuels for space heating, transportation, and operation of machinery and equipment. Solar, hydroelectric, biomass, wind, and geothermal energy resources should be accessed to meet a significant share of the region's energy needs. Deployment of advanced technologies and a smart grid will support energy conservation and efficiency objectives. Refer to the Bennington Regional Energy Plan for comprehensive discussion of this goal.

H. Enhanced recreational opportunities for residents and visitors that provide public health, quality of life, and economic benefits.

Natural resource based recreational opportunities and developed public and private recreational facilities are important to the region. Public recreational lands and facilities should be maintained and acquisition of new conserved lands and development of new or expanded facilities should be pursued to meet identified needs. The transportation system should be maintained and improved to encourage physical activity and provide safe and convenient access to recreational facilities. Actions should be taken to remove existing, or potential future, impediments to access to important recreational lands or facilities. Conflicts between recreational users and impacts from recreational activities on natural resources should be studied and strategies to minimize those conflicts and impacts should be implemented.

I. A supply of housing sufficient to meet the needs of a diversity of social and income groups available in all communities in the region.

A variety of housing types should be available, including single-family, two-family, and multi-family, with options for ownership and rental. New housing should be concentrated in existing compact centers and adjacent areas planned for relatively dense development where a mix of land uses and transportation options supports community public health objectives. Housing development in rural areas must be carefully planned to protect rural character and natural resources and to avoid placing excessive demands on transportation facilities and public services.

J. Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region.

Public utilities must be maintained in good condition and any extensions or

expansions coordinated with regional and local land use plans and growth objectives. Investments in new infrastructure and services should support growth and development in and around downtowns and village centers and address specific environmental and public health concerns. A modern and efficient telecommunication system, accessible throughout the region, is needed to enhance regional economic development, education, and to provide essential communication for residents. An efficient and coordinated regional solid waste management system must be provided to protect the environment and reduce waste disposal costs.

K. Safe and affordable childcare available in communities throughout the region.

Support for access to childcare and early educational opportunities should be available to families and to service providers. Training for childcare workers should be available as part of the local educational infrastructure. The vital importance of quality childcare to regional economic development must be recognized.

L. Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.

New development should be strictly limited except in historic downtowns and village centers where appropriate flood resiliency measures must be taken. All highways and other public infrastructure must be maintained and improved over time to reduce the potential for severe flood damage. Land conservation efforts designed to mitigate flooding's impacts and reduce heat island effect in more densely developed areas should be required. Local communities should work cooperatively to ensure the availability of effective flood response and recovery systems—to climate disasters and other catastrophic community events.

People of the Shires

3 HISTORY

Archaeological investigations have revealed evidence that the Bennington region was used by Native Americans for hunting and fishing as early as 5,000 B.C., with some villages built and occupied along rivers between 1,800 and 1,000 B.C. Small groups of Mohican and Abenaki people inhabited the region until the colonial era, and the Iroquois traveled and hunted in the area during this time too.

The first colonial era town established in the region was Bennington, chartered in 1749 by Benning Wentworth, the governor of New Hampshire. Wentworth's purpose in chartering this first town on the western edge of what is today Vermont was to clearly establish New Hampshire's claims in the area, since New York was known to consider much of the land to be under its jurisdiction and control.

The next towns to be chartered were Woodford and Stamford in 1753. Colonization of the area was not considered safe, however, until hostilities with the French and Native Americans ceased in 1760. Settlers from southern New England were led into the area in 1761 by Captain Samuel Robinson, who purchased several land grants in Bennington, Shaftsbury, and Pownal. Most of the remaining towns in the region were subsequently chartered in that same year.

These settlers quickly began shaping their new communities by clearing land for homes and crops, building grist mills and sawmills, and erecting public buildings. A school and church were built in each town within a few years of initial settlement. The region's natural resources provided for the basic needs of the settlers and supported the earliest industries. The most productive soils were cleared for agriculture, forests were tapped for lumber, potash, and maple products, and by 1790 a marble quarry was operating in Dorset and a paper mill in Bennington.

A network of roadways was soon developed to connect the growing communities to each other and to major centers of commerce outside the region. One principal early road reached north from Bennington through Shaftsbury, Arlington, Sunderland, and Manchester, and another crossed Bennington west to east, connecting Troy, New York, with population centers in eastern New England.

Another important early road entered the region in Arlington, followed the Green River into Sandgate, and crossed Beartown Gap before descending into Manchester and continuing to Springfield, Vermont, on the Connecticut River. Before long, regular stagecoach routes were established and private entrepreneurs built toll roads to facilitate travel. Systems of secondary roads soon evolved to serve local travel and to avoid the fees of the toll roads. Inns and taverns were sited along the roads to accommodate travelers.

All of this early growth and development did not occur in a particularly serene setting, however. A major dispute surfaced as early as 1765 when New York attempted to confiscate the land grants of many of the new inhabitants of the region. The Green Mountain Boys, led by Ethan Allen and Seth Warner, were formed to resist these attempted incursions from New York. A larger conflict between the American colonies and England soon intervened, however, and occupied militia groups for several years.

The Green Mountain Boys achieved considerable fame during the Revolutionary War and fought at the Battle of Bennington in 1777, setting the stage for the crucial American victory at Saratoga. An independent State of Vermont was declared in 1777, with Thomas Chittenden of Arlington becoming its first governor in 1778. All of these events helped to defuse the land claims controversy with New York, which was finally resolved in 1790.

Communities in the region grew steadily over the next several decades, with notable concentrations of activity in Bennington and Manchester, both towns having been named shire towns in 1781. Numerous small industries sprang up around the region; first grist mills, sawmills, and blacksmith shops, then tanneries, shoemakers, paper mills, cloth manufacturers, iron works, the famous Norton and Fenton potteries, and a manufacturer of carpenter's squares ("Eagle Squares" established in 1823 in Shaftsbury). Many of the largest manufacturing concerns were located along waterways in Bennington and North Bennington.

A favorable climate and protective tariffs gave a strong boost to sheep raising in Vermont, and this agricultural enterprise became particularly important in the Bennington region in the first decades of the 19th century. Many hillsides were cleared of trees to provide pasture for the region's sheep, which by 1840 numbered in excess of 100,000. An economic depression in 1837 resulted in the closure of many businesses and manufacturing concerns, and removal of the tariffs on wool products in the 1840s sent sheep farming into decline. Many farmers who had been raising sheep switched to dairying, and this remained one of the region's dominant agricultural activities through the 20th century. A thriving cheese manufacturing industry developed, with nine cheese factories operating in the region by 1880.

A number of other factors in the mid-1800s exerted a strong influence on the future development of the region. The arrival of rail service in 1852 significantly impacted the region in several ways. Obviously, communication and transportation for residents of the region was vastly enhanced. The trains also brought in people from outside the region in ever-increasing numbers, leading to the establishment and growth of the tourism industry. Frank Orvis opened the Equinox House in Manchester in the 1850s to accommodate summer visitors, and many similar establishments followed in the ensuing years. The industrial revolution followed the railroads into the region, with several old factories and mills being converted to new uses and a number of large new

factories built. The "Holden Leonard" mill in Bennington was built during this period in 1865. The marble industry flourished in the northern part of the region, with the greatest quantity of marble being quarried in Dorset (at one time or another, 28 quarries were worked in Dorset) and milled in Manchester.

Similar growth patterns persisted for the remainder of the 19th century, although a few significant events affected the regional economy. The Civil War, while depleting the work force, did give a boost to local textile and machinery manufacturers with a strong wartime demand for those products. A nationwide economic depression slowed growth and caused some factories to close in the 1870s, but by the early 20th century, textile manufacturing had become Bennington's dominant industrial activity. The arrival of telephone service in 1881 and electrical service in 1887 had profound effects on people's lives and the type and character of new development in the region.

Electricity spawned a proliferation of trolley car systems in and between villages. These trolley lines enhanced local passenger transportation and also served a number of camp resorts and other vacation spots, such as an inn and casino in Glastenbury. The arrival of the automobile foretold the end of the trolley era, and passenger cars and tractor-trailer trucks would eventually lead to a decline in the use and significance of rail service throughout the 20th century. Transportation improvements represented one of several causes that led to the consolidation of schools and school districts in the region (in 1869 there were 150 separate school districts in Bennington County).

Forestry and related industries have been of great importance to the economy throughout the region's modern history. Tree harvesting was first undertaken to clear land for settlements and cropland, to serve early construction needs, and for potash production. In the 1800s trees were cleared for pastureland and to feed blast furnaces for iron foundries. The apex of logging activity in the region may have come around the turn of the 20th century when large lumber companies cleared vast acreages in the Green Mountains and sent the logs down rail lines and rivers to feed sawmills in cities and towns to the south.

The Rich Lumber Company operated during this time in Manchester, logging in the Lye Brook and Bourn Pond areas east of the town center. The clustered houses of "Richville" stand as a reminder of this time. Commercial logging continues to be an important economic activity, both in the Green Mountain National Forest, and on private tracts of forest land. The upland forests also form the scenic backdrop to the region and include vitally important environmental and recreational resources.

The first decades of the 20th century saw a number of important developments. The region's first hospital, Putnam Memorial, now known as the Southwestern Vermont Medical Center (and now a member of the Dartmouth-Hitchcock Health System), was opened in 1918. A very severe flood in November of 1927 caused extensive damage to buildings, roads, and bridges, and washed out trolley and rail lines throughout the

region (many of which were never rebuilt). The increasing reliance on automobiles led to a need to improve roads, and most of the main roads through the region were paved by 1940.

The stock market crash of 1929 ushered in a period of hard times for the regional economy. Particularly hard hit was the local textile industry. The failure of the Holden Leonard mill in 1938 idled 800 local employees, fully one-fourth of Bennington's work force at the time. Several events during this time, however, did suggest brighter years ahead. Bennington College opened in 1932. The Southern Vermont Artists was incorporated by artists in Manchester and Dorset, and today stands as the Southern Vermont Arts Center in Manchester. And in Woodford and Peru, the ski industry took a giant step forward with the addition of mechanized lifts in 1939.

The post-World War II era was a time of relatively rapid changes and growth in the region. A number of industries serving new technologies (e.g., automobile parts, batteries, specialized fabrics, plastics, computer supplies) replaced older manufacturing businesses in Bennington, Arlington, and Manchester. Some traditional industries, however, remain important to the region's economy, including dairy farming, lumbering, and wood product industries.

The last decades of the 20th century demonstrated a keen interest throughout the region and state in the conservation of natural resources and active planning for the future that protected these assets. The growth of the Green Mountain National Forest, establishment of state parks at Lake Shaftsbury, Emerald Lake, and Woodford Lake, creation of the Merck Forest and Farmland Center, and Hildene’s environmental and agricultural programs are clear manifestations of this concern. Municipal plans and ordinances, and a number of state laws such as Act 250 and Act 200, were enacted to encourage economically advantageous growth while protecting the open spaces and natural environment that have been so important to the region's history.

In the 1990s the long-planned limited access highway running from Bennington to Dorset (Route 7) was completed and Route 279 was constructed providing a bypass route between the east and west sides of Bennington – with a state visitor center located at its intersection with Route 7. With the region very accessible to major population centers of the northeastern United States, the vacation and tourism industry continued to grow in importance. Summer residents, outdoor recreation enthusiasts of all kinds (including the many skiers who visit the Bromley Mountain Resort and other nearby ski areas), "leaf-peepers," shoppers, and people attending the many cultural attractions and events in the area all contribute to the region's economic health.

In August of 2011 Tropical Storm Irene led to the loss of multiple homes, damaged businesses, and extensive damage to local and state highways and to other important public infrastructure. This storm prompted a statewide reevaluation of where and how buildings and roads are constructed and maintained and focused attention on

the need for improved emergency response systems. Since then, heavy rains associated with increasingly frequent storm events have led to major flooding and fluvial erosion damage throughout the region, highlighting the need to consider community resilience in all aspects of local and regional planning.

While the Bennington region has certainly seen profound changes, it is evident that the past has shaped the present and that the region will continue to value and benefit from its rich history. Additional information on the region's history can be found in: The Shires of Bennington: A Sampler of Green Mountain Heritage by Tyler Resch (Published by the Bennington Banner for The Bennington Museum, 1975), the main source of the information presented in this chapter.

4 POPULATION

4.1 General Characteristics

Bennington County is estimated to have a population of 37,347 based on the 2020 decennial Census. The Bennington region, which is a subset of Bennington County has an estimated population of 35,337. The Bennington region includes 17 of the 20 municipalities in Bennington County. The Towns of Winhall, Readsboro, and Searsburg; while located within Bennington County, are members of the Windham Regional Commission. While this plan still uses county-level data for broad socioeconomic and demographic analysis, it is worth bearing in mind that these three towns contributed a net gain of 369 residents between 2010 and 2020, while the county added just 222 residents in that time. The population changes by town between the decennial censuses is shown in Map 4-1. As explored in greater detail below, the already near-stagnant growth the county experienced between the decennial censuses would have been negative but for the non-BCRC towns identified above[1].BCRC staff will monitor continuing demographic shifts in these towns to ensure that county-level data remains appropriate for future regional planning purposes.

After a near-decade of decline, the county experienced significant population growth between 2019 and 2021. Table 4-1 includes the change in population between 2010 and 2020 for each of the region's municipalities, the region, the county, and the state, along with median age calculations where available. Although most municipalities gained population, the population of the BCRC region still declined slightly in the decade between 2010 and 2020 (-0.4%). Towns experiencing declines in population included Bennington (-2.7%) although its incorporated villages, Old Bennington Village and North Bennington, both experienced increases. Other towns that saw declines were Woodford (-16.5%), Sandgate (-4.4%), Rupert (-2.2%), and Pownal (-7.6%). Peru saw the largest relative increase in population (41.6%) while Shaftsbury saw the smallest relative increase (0.2%).

The aging of the county's population continues a trend experienced in the last few decades. The median age of county residents increased by 1.3 years between 2010 and 2020. Median age by town in the region is depicted in Map 4-2. The median age increased in every municipality in the region except for Arlington, Shaftsbury, and Old Bennington. Arlington and North Bennington Village have the youngest populations in the region, lower than the state median, while all other communities have median ages close to or above the state and county medians. North Bennington's younger population

[1] The vast majority of this growth occurred in Winhall, which added 413 residents: a 53 percent increase in population. In fact, Winhall has more than tripled in population since 1980, a level of growth unmatched elsewhere in the county and most of Vermont. Winhall Searsburg and Readsboro accounted for approximately 4.4 percent of the county's population in 2010 but taken together they experienced a 22 percent increase in population between 2010 and 2020.

can likely be attributed to Bennington College students identifying the village as their primary place of residence. Landgrove, Manchester Village, Woodford, and Manchester are characterized by median ages significantly above the county and state medians.

Table 4-1. Population and Median Age by Municipality in the Bennington Region
Source: US Census Data

Municipality	2020 Population	% Change from 2010	2020 Median Age (Years)	Change from 2010 (Years)
Arlington	2,457	+ 6.0	38.3	- 6.9
Bennington	15,333	- 2.7	43.7	+ 2.9
North Bennington Village	(1,716)	+4.4	(23.8)	+ 1.0
Old Bennington Village	(156)	+ 12.2	(46.7)	- 6.7
Dorset	2,133	+ 5.0	48.2	+ 2.7
Glastenbury	9	+ 12.5	NA	NA
Landgrove	177	+ 12.0	66.2	+ 12.7
Manchester	4,484	+ 2.1	53.1	+ 3.9
Manchester Village	(783)	+ 8.5	(64.7)	+ 2.8
Peru	531	+ 41.6	50.0	+ 2.2
Pownal	3,258	- 7.6	45.5	+ 2.2
Rupert	698	- 2.2	50.4	+ 1.9
Sandgate	387	- 4.4	52.4	+ 6.0
Shaftsbury	3,598	+ 0.2	46.2	- 0.2
Stamford	861	+ 4.5	50.2	+ 2.7
Sunderland	1,056	+ 10.5	47.6	+ 2.3
Woodford	355	- 16.5	54.1	+ 7.0
Bennington Region	**35,337**	**- 0.4**	**NA**	**NA**
Bennington County	**37,347**	**+ 0.6**	**46.4**	**+ 1.3**
State of Vermont	**643,077**	**+ 2.8**	**43.2**	**+ 1.7**

Note: the populations of Manchester Village, North Bennington, and Old Bennington are included in the population counts for the two towns.

4.2 Dynamics

Although the declines detailed in Table 4-1 are cause for concern, it is worth bearing in mind that the region's growth since 2019 means that it did not suffer the level of decline that recent trends had suggested it would. In 2013, Vermont produced a population projection report that raised concerns across the state. The report posited two scenarios based on migration rates from previous decades: Scenario A was "high growth," based on migration patterns in the prosperous economy in the 1990s, and Scenario B was "low growth," based on the more sluggish economy of the 2000s. Projections for 2020 and 2030 were included for each growth scenario. Here are those projections for Vermont and Bennington County, along with the population estimates

from 2018 and 2023 for those geographies:

- Vermont
    - State Scenario A: 670,073 (7.1% growth from 2010)
    - State Scenario B: 620,480 (0.8% decline from 2010)
    - Census 2018 Estimate: 624,802 (near-level with 2010)
    - Census 2023 Estimate: 647,464 (3.5% growth from 2010)
- Bennington County
    - State Scenario A: 37,470 (0.9% growth from 2010)
    - State Scenario B: 35,034 (5.6% decline from 2010)
    - Census 2018 Estimate: 35,635 (4% decline from 2010)
    - Census 2023 Estimate: 37,183 (near-level with 2010)

In sum, a mere five years after the population projections were released, Bennington County's population estimate had already fallen far below the "low growth" scenario's projection for 2020, and was approaching its estimate for 2030, a full twelve years into the future. However, the onset of the pandemic brought this trend to a complete halt, reversing the 2010-2018 decline by the early 2020s.

A review of county migration patterns illustrates the shifts that helped stabilize Bennington County's population by the decade's end. American Community Survey data from 2016 to 2020 indicate that in that time Bennington County experienced a net increase of almost 600 residents: more than 100 people moved to Bennington County from another part of Vermont, and more than 300 people moved to Bennington County from New York state. Bennington County lost residents to Massachusetts (140) and New Hampshire (fewer than 20 people). But more than 200 people moved to Bennington County from other parts of the United States, and more than 100 people moved to Bennington from abroad. Prime origins for people moving into Bennington County from out of state were Washington County and Suffolk County in New York, and Bergen County, New Jersey. Prime origins within Vermont were Rutland County, Addison County, and Windham County. The primary destination for departing Bennington County residents was Berkshire County, Massachusetts. Smaller outflows reached northwestern Connecticut, southwestern New Hampshire, and eastern central Vermont. Net migration flows for the 2016 to 2020 period for Bennington County are depicted in Map 4-3.

That nearly 20 percent of the net growth in that time is from overseas – unfolding prior to the coordinated efforts around support systems for asylum-seekers, refugees, and immigrants – speaks to the region's value as a destination for new Americans. Furthermore, it underscores the region's reliance on new Americans to mitigate population losses resulting from the unsustainably low birth rate in Bennington County

through the 2010s: approximately 76 births for every 100 deaths. This is nearly half the national rate of 149 births for every 100 deaths, and well behind Vermont's low-but-still-positive 105 births for every 100 deaths.

4.3 Age

Like the rest of Northern New England, Vermont's median age (42.9 years) exceeds the national median age of 38.5 years. In Bennington County, the median age is notably higher still at 46.7 years. One remarkable distinction within populations is illustrated in Table 4-2. The median age of Bennington County residents born in Vermont is just 35.4 years, while the median age of those residents born elsewhere in the United States is 52.6 years. Although the county's margin of error is considerably larger than that of Vermont or the nation, the gap is indicative of the region's attractiveness to retirees and second-home owners who eventually make the county their primary place of residence.

Table 4-2. Median Age by Place of Birth
Source: 2020 US Census

	United States	Vermont	Bennington County
Born in State of Residence	30.9 ±0.1	36.1 ±0.3	35.4 ±1.8
Born in another US State	47.6 ±0.1	49.0 ±0.4	52.6 ±1.3
Native: Born Outside of US	39.1 ±0.3	44.2 ±4.0	36.5 ±1.9
Foreign Born	46.0 ±0.2	47.1 ±1.3	49.5 ±5.6
Total Population	**38.5 ±0.1**	**42.9 ±0.2**	**46.7 ±0.4**

Much of the distinction between the region and the state boils down to the county's relative lack of adults under 50 years of age. Within Bennington County, 21.6 percent of the residents are under 20 years of age, fully in line with the state's 21.4 share. But while 36.1 percent of Vermont residents are between 20 and 49 years old, just 30.9 percent of Bennington County residents are in those prime years for establishing and nurturing families and careers.

As the country confronts the senior years of the Silent Generation and the Baby Boom, there are significant implications for families in the region who will be tasked with raising children and providing elder care. In a region with an already undersized workforce, the loss of full-time productivity due to competing familial obligations is a significant concern as will be discussed further in Chapter 7.

4.4 Race and Ethnicity

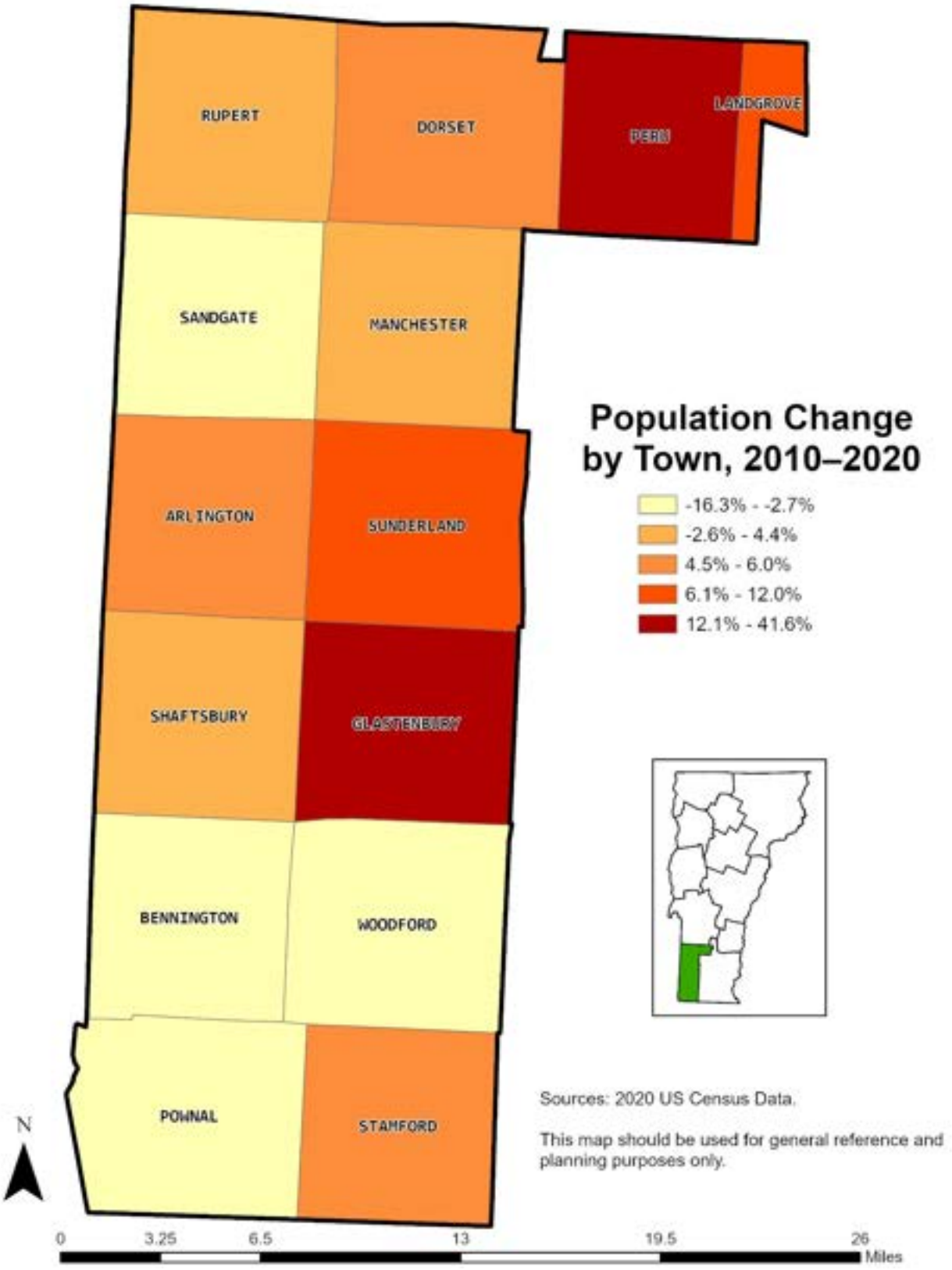
Like the state, the racial and ethnic makeup of Bennington County is primarily non-Hispanic White. In 2010, this segment of the county accounted for 95.6 percent of the population. By 2020, however, the figure stood at 90.8 percent of the population. The increasing diversity of Bennington County has been driven by growth in nearly all broad racial and ethnic categories. The Black population grew from less than 1 percent to 1.2 percent of the total (430 individuals); the Asian population grew from less than 1

percent to 1.1 percent (406 individuals); and the presence of “Some Other Race” increased significantly from 20 individuals in 2010 to 323 in 2020, or 0.9 percent of the population. Other racial categories, including American Indian or Alaska Native, and Native Hawaiian and Other Pacific Islander, remained largely unchanged. Meanwhile, the Hispanic population – an ethnicity that is represented in all racial categories – nearly doubled to 2.5 percent of the total (939 individuals). Nationally and throughout New England, multiracial populations are experiencing the most significant growth of any group, a trend present in Bennington County, too. The most visible demographic growth was among individuals with multiracial heritage, a category that included just over one percent of county residents in 2010 but 5.2 percent in 2020 (1,930 individuals).

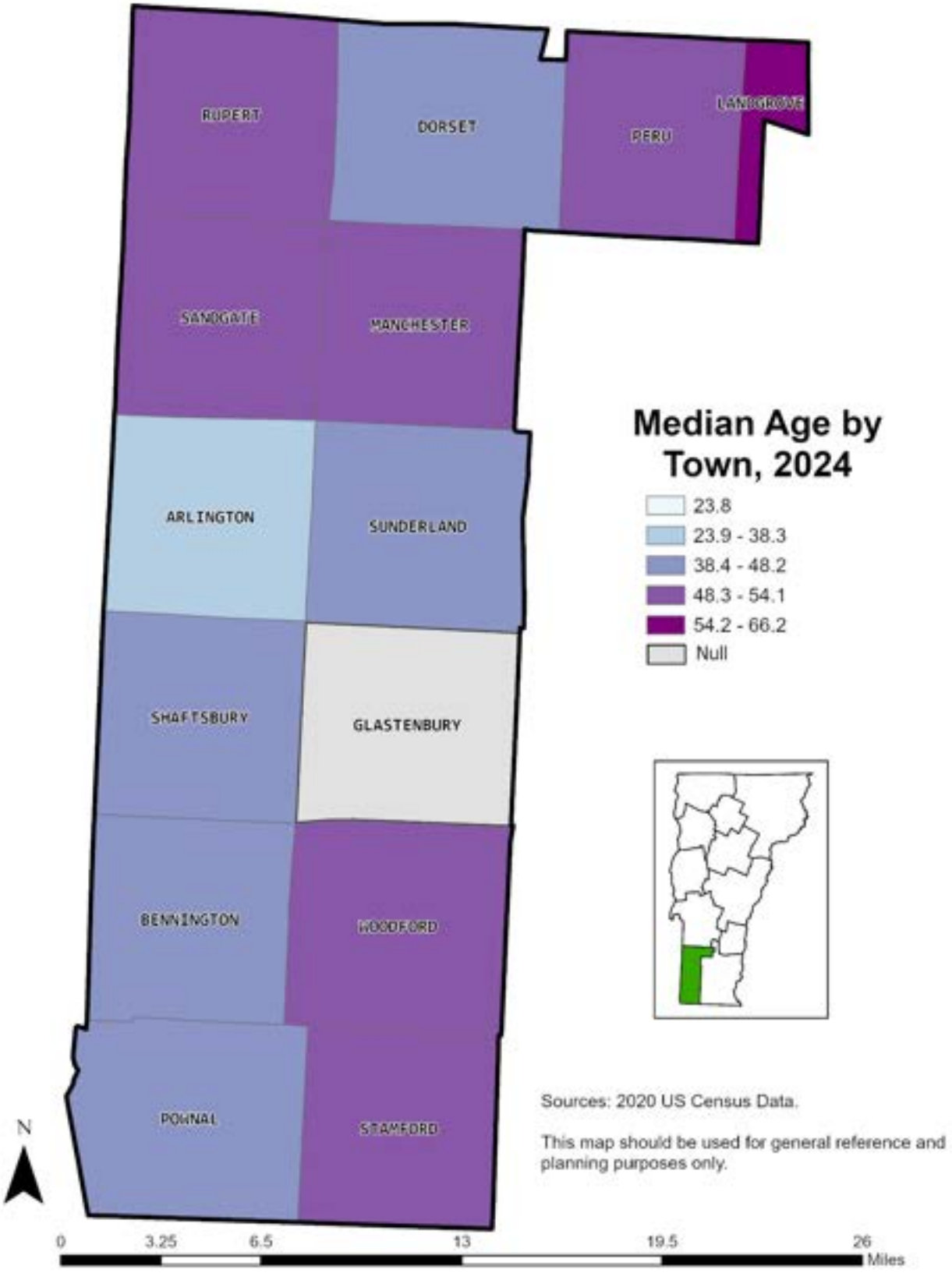
4.5 Demographic Policies and Actions

1. Relocation continues to be an important part of the region’s population stability. The BCRC will support efforts to connect newcomers with broad initiatives – Vermont Begins Here, Shires Young Professionals, and others – and encourage consistent coordination among local groups, regional organizations, and employers.
2. The BCRC and economic development partners will work to ensure that BIPOC entrepreneurs are connected to statewide resources, including the Vermont Professionals of Color Network.
3. The BCRC will work with Bennington County Open Arms and Grace Initiative Global, organizations that have partnered with federal refugee resettlement agencies, to ensure that new Americans settling in the region are welcomed in ways that secure their continued presence in the region.
4. The BCRC will pursue its public outreach efforts for planning and other civic purposes with an awareness of the growing diversity of the Bennington region, in both its US-born and foreign-born populations. Expectations for representative input – and the resources needed to reach a more diverse public – should be adjusted accordingly.
5. Employers working to recruit relocating workers should not have to bear the burden alone. The BCRC will coordinate with regional partners to establish pipelines from targeted areas, including New York’s Capital District, to sustain in-migration to meet workforce demands.

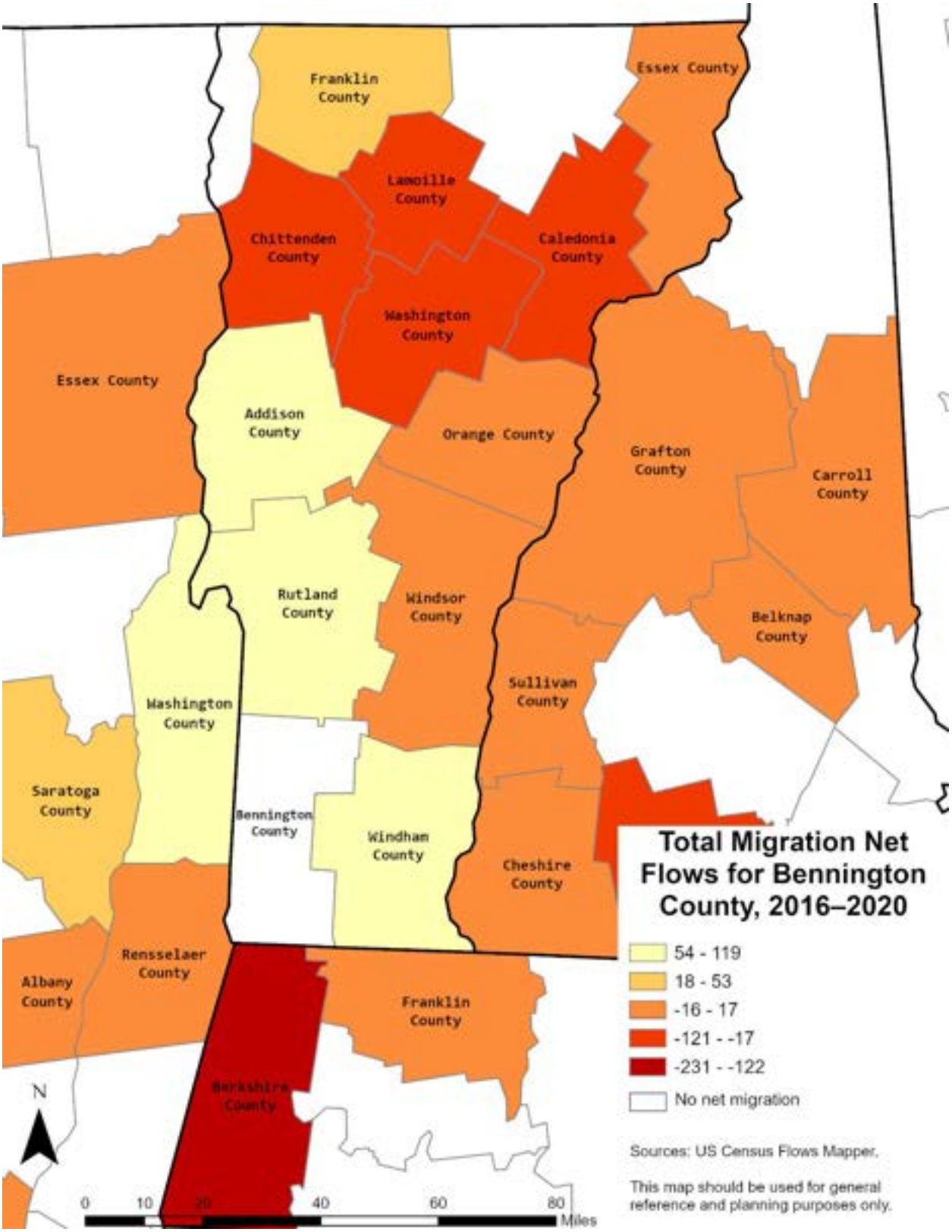
Map 4-1. Population Change by Town in the Bennington Region.



Map 4-2. Median Age by Town in the Bennington Region.



Map 4-3. Net Migration Flows for Bennington County, Vermont, 2016-2020.



5 HOUSING

5.1 Data Sources and Municipal Capacities

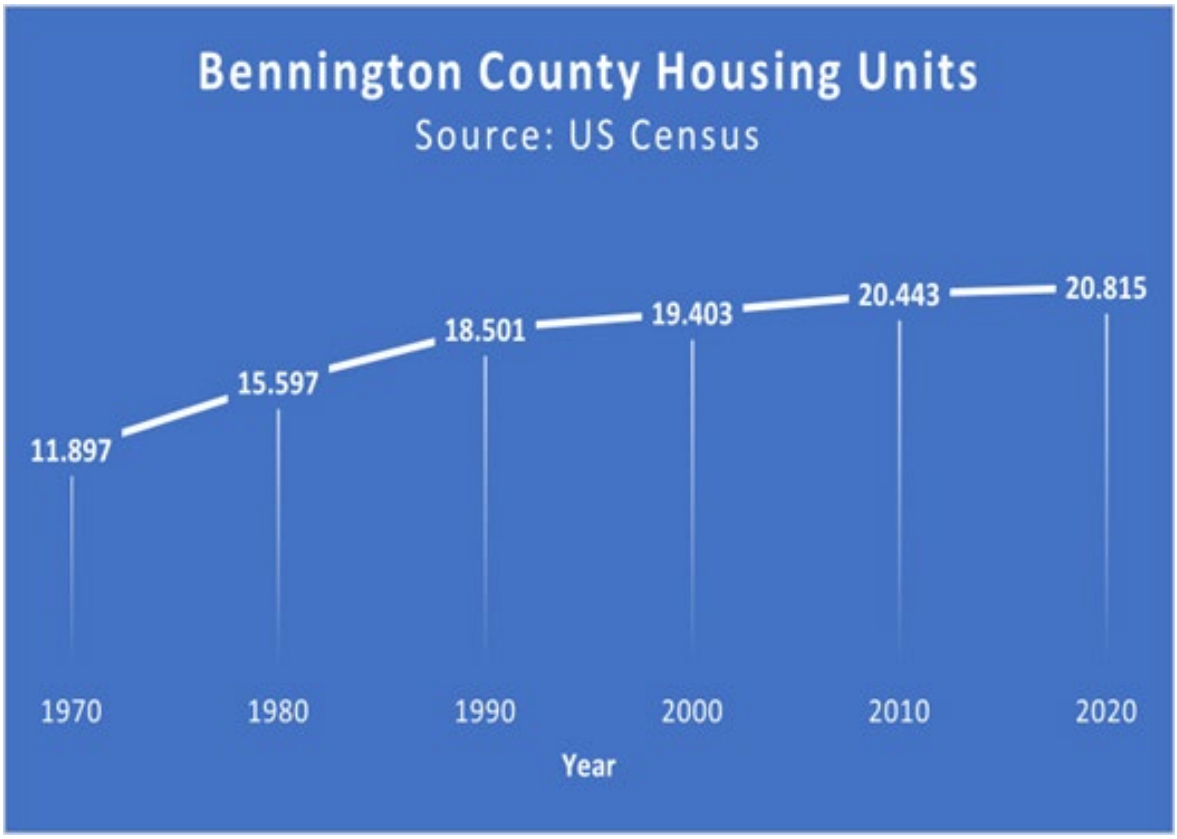
The US Census Bureau's American Community Survey (ACS) collects and analyzes housing data and reports housing related estimates by county and municipal jurisdictions. However, the data are not considered to be entirely reliable, particularly as reported for smaller jurisdictions. Nonetheless, the Vermont Housing Finance Agency (VHFA) and Department of Housing and Community Development (DHCD) rely on the ACS as the basis for publishing housing targets by county in the Vermont Housing Needs Assessment renewed every five years. A provision of the 2023 HOME Act tasks the state's regional planning commissions (RPCs) to disaggregate these county targets by municipality in their regional plans. Other data sources are considered by VHFA and DHCD as available to produce the county housing targets, and the BCRC will draw upon recent studies of housing markets within the Bennington region in recommending housing targets for its 17 member municipalities in this section of the regional plan.

Other considerations that will inform the municipal targets are the availability of water and sewer infrastructure, average annual permits issued for new residential units, and local labor market trends by municipality. Before presenting the municipal targets, however, we will present a general picture of the regional housing market largely based on US Census Bureau data. Some data are reported by county, and others by municipal jurisdiction. Because the county data will include data from the towns of Winhall, Readsboro, and Searsburg, which are not part of the Bennington region, in some cases the municipal data will be aggregated to reflect the regional picture as distinct from the county.

5.2 Housing Units in the Region

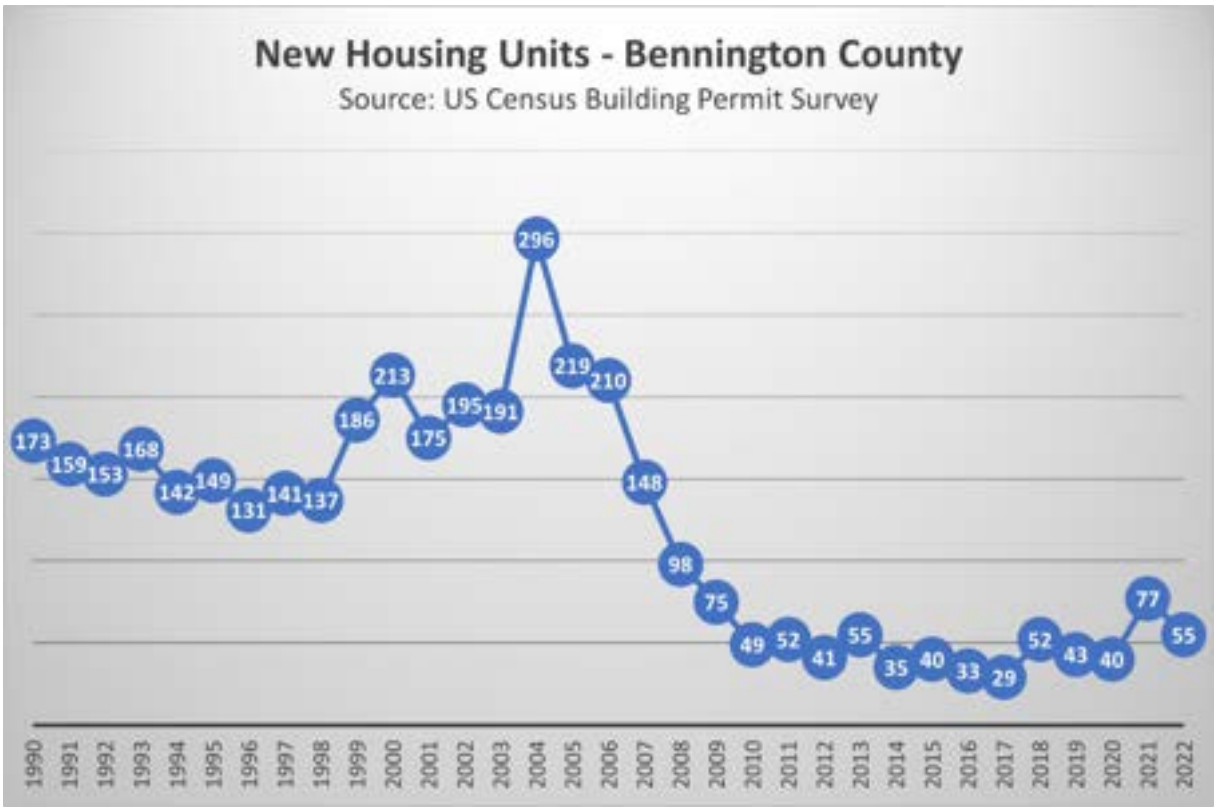
US Census Bureau decennial census data indicate that the number of housing units in Bennington County increased steadily from 1970 until 1990 (see Figure 5-1). However, after 1990, and particularly after the 2006-2007 national recession, the rate of increase declined. The US Census Building Permit Survey shows little change in the rate of new housing development in the county since 2010 with an average of 46 units permitted annually in the county (see Figure 5-2). Housing development has not kept up with demand as older stock is lost in Bennington County. This reflects a national pattern and is a significant factor in the current housing crisis. As of the 2020 US Census there were 20,815 housing units of all types in Bennington County (excluding housing units in Winhall, Readsboro, and Searsburg, there were 18,520 housing units in the Bennington region).

Figure 5-1. Housing Units in Bennington County, 1970-2020. *Source: US Census.*



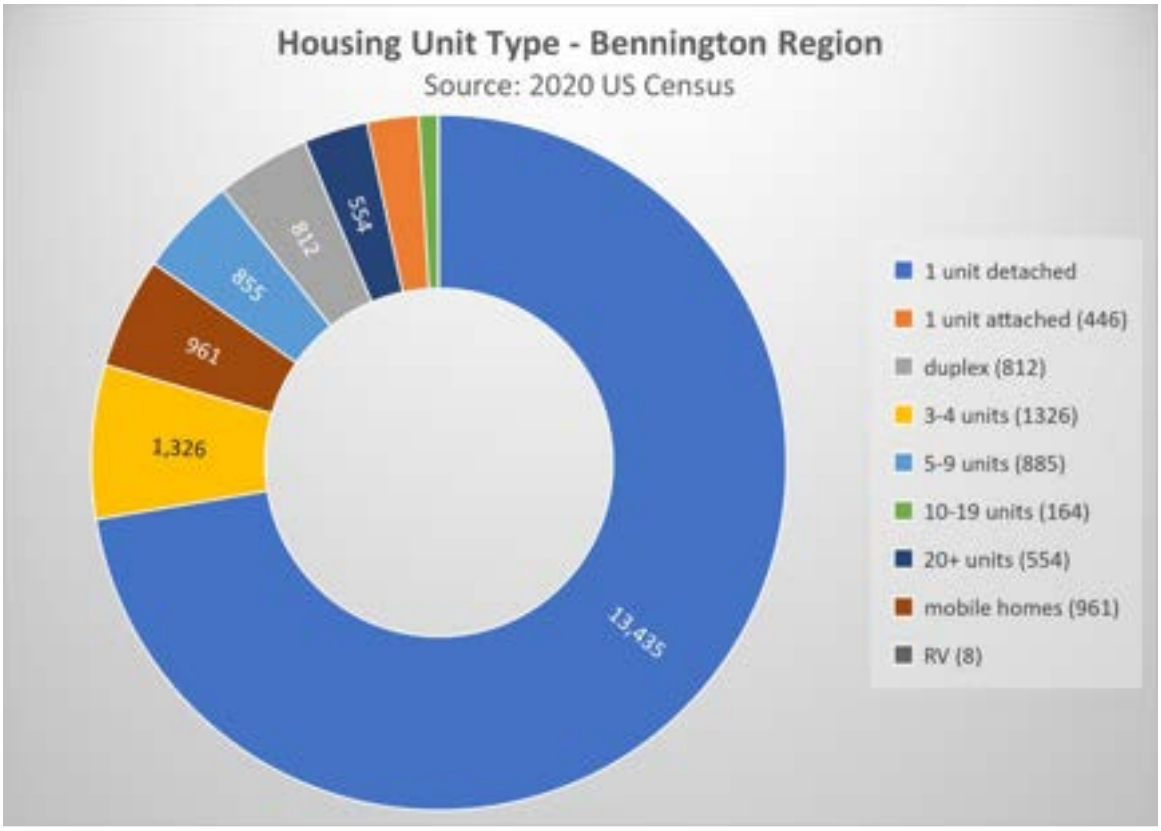
Predictions made for 2023 and 2028 by Environmental Systems Research Institute. Inc. (the geographic information system software company doing business as Esri) based on US Census data indicate little change in relative numbers of occupied and vacant housing units in Bennington County with about a 75% occupancy. The occupancy of units is expected to change slightly with owner occupancy growing from 54.4% in 2020 to 57.2% in 2028 and renter occupancy decreasing from 21% in 2020 to 18.3% in 2028 (the portion of vacant units is expected to remain relatively unchanged at 24.5% in 2028). Vacant units in 2020 were primarily seasonal homes (71.4% of vacant units), while 8.2% of vacant units were for rent, and 4.2% for sale (2020 Decennial Census data). Less than fifteen percent (12.7%) of the total housing stock in the fourteen Bennington region towns is seasonal, whereas 17.5% of units within the seventeen Bennington County towns are seasonal (Winhall, Searsburg, and Readsboro fall in Bennington County but not in the Bennington region).

Figure 5-2. New Units by Year in Bennington County, 1990-2022. *Source: US Census Building Permit Survey.*



According to the decennial US Census (see Figure 5-3), occupied housing units in the county in 2020 were primarily single unit detached homes (74.2% of occupied housing units). Duplexes comprised 4% of occupied units, while 7.2% of occupied units were in buildings containing three to four units, and 8.2% in buildings of five or more units. Mobile homes made up 5% of the occupied housing stock in Bennington County in 2020 according to the decennial census. US Census Bureau ACS estimates for 2018 through 2022 indicate that most of the housing stock in the Bennington region had two and three bedrooms (22% and 40% respectively), while 23% had four or more bedrooms, and 14% were studio or one-bedroom homes. In short, most homes in the region (63%) contain three or more bedrooms.

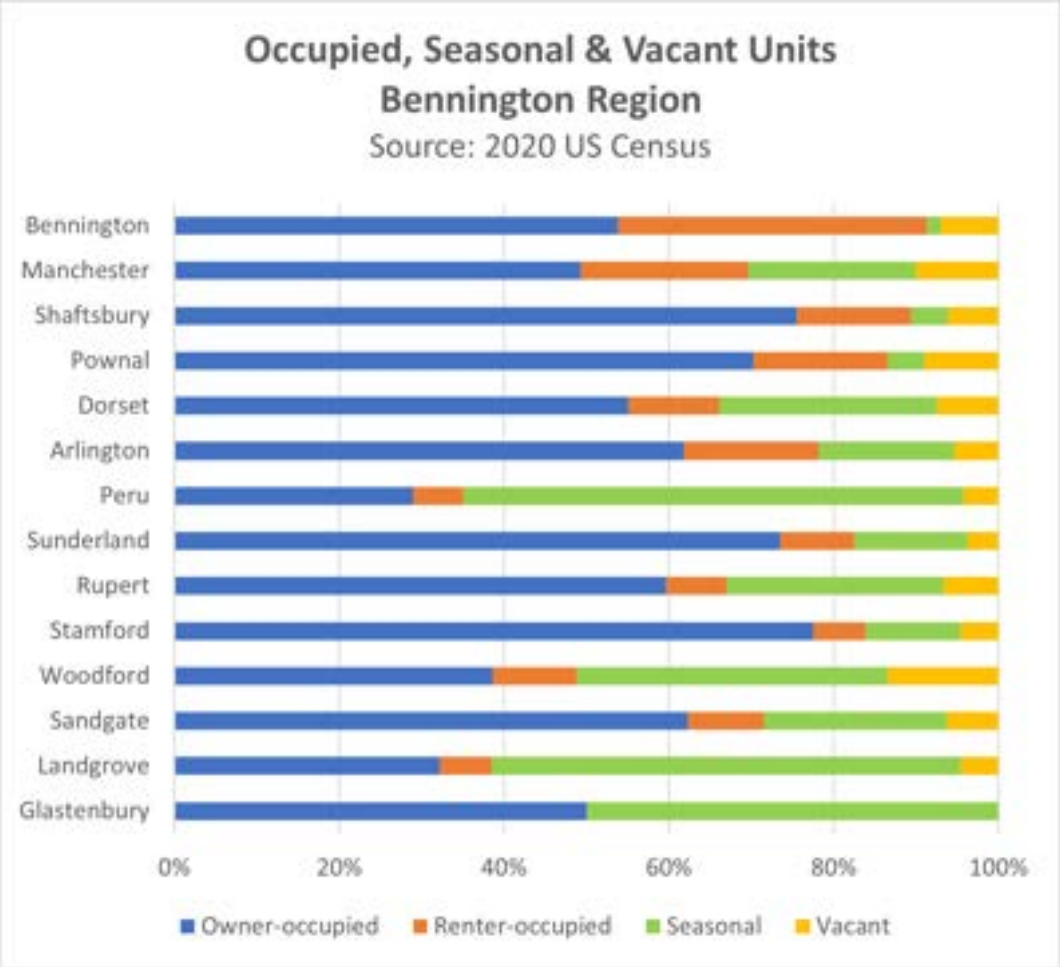
Figure 5-3. Housing Unit Type in Bennington County, 2020. *Source: US Census.*



There are some clear differences in the composition of housing among towns and villages within the Bennington region according to decennial census data. Approximately two-thirds of the mobile homes in the region are located in the Southshire communities of Pownal (23.8% of that town's total housing stock), Bennington (4.1% of the housing stock), and Woodford (9.3% of the town's housing stock). Notably, all seventy-seven housing units in the Village of Old Bennington are single unit detached homes. The status of homes as occupied and primary residential or seasonal residential also varies throughout the region (see Figure 5-4). A number of Northshire towns, notably the mountain towns of Peru and Landgrove, but also to a lesser degree Dorset and Manchester, include large percentages of seasonal homes, while the portion of seasonal dwellings in Bennington and the larger Southshire communities of Pownal and Shaftsbury is low. Sixty percent (60%) of the homes in Peru, home to the Bromley Mountain Resort, are seasonal residences, and Peru also has the highest portion of short-term rentals (14.2% of total housing stock).[2] In the Southshire, Woodford, a high elevation town with most of its land in the Green Mountain National Forest, also includes a significant portion of seasonal dwellings (38%).

[2]2022 ACS data indicate that a major proportion (80%) of the housing stock in the Town of Winhall are seasonal homes. Winhall is included in county ACS data, but Winhall is not part of the Bennington region, so countywide census data on seasonal homes is skewed upward relative to that of the region.

Figure 5-4. Occupied, Seasonal and Vacant Units in the Bennington Region, 2020. *Source: US Census.*



Based on data from the decennial census, the largest numbers of rental properties are in the most populous communities in the region, particularly in Bennington, where approximately four out of ten housing units are rentals, although quite a large number are located in Manchester, the Northshire's most densely settled town (approximately three of ten units). The vacancy rate – housing units for sale or rent – generally ranges from one to three percent for municipalities in the Bennington region as reported by the 2020 decennial census. Manchester Village (6.3%) and Manchester (4.3%) are the only municipalities with vacancy rates above three percent (although a more targeted 2020 study indicated a smaller vacancy rate in Manchester of about 2%).[3] Glastenbury is the only municipality with a vacancy rate below one percent with a rate of zero (Glastenbury has only four housing units, two of which are seasonal). A rental vacancy rate of five percent is considered healthy, allowing for choice and movement within the market. Given the recent Manchester study together with the 2020

[3] Downtown Manchester Mixed Use Development Market Feasibility Study. 2020. Doug Kennedy Advisors.

Census data, it is likely that no municipality in the region currently has a rental vacancy rate considered healthy.

Countywide, the rental vacancy rate has decreased steadily while rents have increased over the last decade. These trends are reported in the 2021 Energizer Reuse Study by Camoin Associates and the BCRC. The study examined the housing market for Bennington and its labor market area (LMA) and concluded that low vacancy rates reflect an "… extremely tight market and the existence of rental demand that is not currently being met in the market. New rental units are needed to restore a healthy balance in the market and meet this unmet demand."[4] This market demand was demonstrated as all thirty-one residential units in Bennington's Putnam Block redevelopment were fully leased before opening in December of 2020 and there has been a waiting list ever since.

The 2020 study by Doug Kennedy Advisors[5] looked at all rental listings in Manchester in May and August of 2019 and concluded a tight rental market with an estimated vacancy rate of 1.8 to 2.0% for the town. Furthermore, Doug Kennedy Advisors found that the monthly rents in Manchester were over 30% higher than the county fair market rent (FMR) for one- and two-bedroom units and nearly 90% higher than county FMR for three-bedroom units. The Kennedy housing market analysis for Manchester and the Manchester LMA concluded that a downtown project of thirty to thirty-five residential units would be fully absorbed within a year and that a downtown Manchester mixed-use development should include forty to forty-five residential units at a mix of sizes and for a mix of incomes.

A second study by Doug Kennedy Advisors focused on the short-term rental (STR) market in Manchester (both the town and village). Although STR units are less likely to be a factor in the Bennington housing market in which seasonal homes are not as prevalent, in Manchester they seem to comprise a steady 6% of housing stock and largely part of already high seasonal home market.[6] This portion of housing stock seems to represent a leveling off after rapid growth in the Manchester STR market that occurred from 2015 to 2018. The Kennedy study indicated that the Manchester STR trend appears to mirror that of Bennington County and the state as a whole. Although it is a contributing factor to the crisis, unless trends change significantly, the STR market does not seem to be currently exacerbating the housing availability problem in the region's second largest community. Nonetheless, in a housing market as tight as that we are experiencing now, keeping a close eye on the STR market may be an important aspect of addressing housing needs in the region. The BCRC recommends that municipalities concerned about STR impact on housing availability consider enacting a

[4] Energizer Reuse Study. 2021. Camoin Associates & Bennington County Regional Commission. P.68.
[5] Downtown Manchester Mixed-Use Development Market Feasibility Study. 2020. Doug Kennedy Advisors.
[6] Short Term Rental Impact Study. 2023. Doug Kennedy Advisors.

registry to track the market and ensure that units are safe and meet other community standards. The Town of Peru and the Village of Manchester have recently enacted such regulations and others such as Sunderland, North Bennington, and Dorset are considering regulations that can serve as models for others.

5.3 Housing Cost and Affordability

When seeking a place to live, people consider the location, quality, and cost of available housing. Many factors weigh on desired location, but a leading issue for many residents is proximity to work, schools, and services. It is important that good quality housing – for purchase and rent – be available in a variety of types and price ranges within the region's communities. Nonetheless, housing has become a persistent problem in the region largely because new housing construction has not kept pace with the loss of housing stock and the demand from new residents. This is despite a stagnant or declining population. This lack of housing stock contributes to higher housing costs and higher rates of homelessness, compounding the housing crisis.

Housing is a fundamental need and one that represents a major cost to any family or household. The cost of home ownership consists of the purchase price of a home (down payment and closing costs) plus recurring costs that include mortgage principal and interest, property taxes, insurance, and heating and utility costs. While most occupied housing units in the Bennington region are owner-occupied (72%), the rental market is significant (28% of occupied units), particularly in the larger towns as already noted. Rental properties usually require a significant advance payment to secure a lease. Monthly rental payments often include water, sewer and waste removal, and may include heat, but generally do not include electricity, cable, or internet services.

People need to have sufficient income to pay all housing costs with enough additional income to cover the cost of food, clothing, transportation, and other necessities. As estimated by the US Census ACS, in 2023 median household income in the county is $68,558, with considerable variation around the region, north and south. Housing affordability is most often assessed by whether a household pays over thirty percent of its income toward housing costs. While households paying more than thirty percent may be covering their housing costs, they often are strained in meeting other basic needs with their remaining income and are at risk of missing mortgage or rent payments if other unexpected expenses arise. Over fifty percent of renters in Bennington County are in this category and about a third of homeowners. The situation is most pronounced - in Bennington and countywide - in households with three or more family members.

Consequently, the cost of housing relative to income in the Bennington region is quite high. Home values vary across the region; in general, values are lower in the Southshire (Woodford, Pownal, and Bennington have the lowest home values in the region) and higher in some of the Northshire communities (Manchester Village, Dorset,

and Landgrove having the highest valued homes in the region). There are exceptions, of course, as in Old Bennington Village, with its large and relatively expensive homes. Rental costs are more consistent, but the quantity and quality of rentals may vary from town to town. Table 5-1 reports US Census ACS data for 2022 for Bennington region municipalities. As indicated earlier, there are problems with the ACS data.[7] Nonetheless, the trends described are relatively accurate for different parts of the region. Note that the ACS data do not include utilities, so the cost burdened portion of households throughout the region could be higher than that indicated in the table.

Table 5-1. Household Cost Burden by Municipality in the Bennington Region. *Source: US Census ACS, 2022.*

Municipality	Median Home Value	Median Gross Rent	Median Household Income	Owners Paying >30% Income	Renters Paying >30% Income
Arlington	$205,600	$1,139	$62,448	21.3	55.3
Bennington	$191,200	$1,010	$58,253	23.0	65.1
North Bennington	$251,400	$1,141	$62,125	22.1	51.4
Old Bennington	$367,600	no data	$146,250	18.6	50.0
Dorset	$423,500	$806	$74,957	29.7	57.7
Landgrove	$673,600	$1,094	$128,750	29.1	20.0
Manchester	$389,600	$769	$87,985	30.8	53.0
Manchester Village	$450,800	$491	$33,750	39.9	61.8
Peru	$418,200	$1,203	$112,159	20.6	52.0
Pownal	$201,200	$924	$71,382	21.9	13.8
Rupert	$288,200	$858	$52,457	27.0	58.0
Sandgate	$178,800	no data	$67,656	22.0	20.0
Shaftsbury	$260,100	$873	$103,938	13.3	48.0
Stamford	$258,500	$1,167	$78,000	68.0	41.2
Sunderland	$241,400	$1,402	$78,333	20.3	68.0
Woodford	$182,300	no data	$58,875	28.9	no data
Source: ACS 2022 DP04					

Often overlooked when considering the cost and affordability of housing is the cost of energy. The *regional energy plan* (Chapter 13 of this plan) contains detailed recommendations for reducing home energy consumption and cost. Weatherization of existing homes, new construction meeting “Energy Star” guidelines, and switching to less expensive local renewable energy sources (e.g., wood or geothermal heat pumps for heat) can significantly reduce the cost of housing for people.

[7] For example, we know from targeted studies of the housing markets in Manchester and Dorset that rents are higher in those towns than they are in Bennington, but the ACS Data do not reflect this reality.

The location of housing also plays an important role in energy use and cost. Transportation fuel use adds to the household energy burden. Living closer to work, school, and services can significantly reduce fuel use and expense. The same principles apply in the region's urban centers and the region's small towns and villages. Indeed, with less multiunit housing and longer travel distances to work and services, the costs tend to be even higher for the more rural parts of the region.

5.4 Housing Organizations and Services

A number of programs and organizations exist to help address the high cost of housing in the region. Shires Housing is a nonprofit housing organization that has developed quality and perpetually affordable housing, with an emphasis on housing for people in the local workforce. Shires Housing currently owns two hundred twenty-five (225) rental units in the region; thirty-six units in Manchester, thirty-eight in Arlington, and one hundred fifty-one (151) in Bennington. Reflecting the challenges faced by organizations developing affordable housing, Shires Housing is currently working to form a legal merger with the Housing Trust of Rutland County and NeighborWorks of Western Vermont.

Statewide supporting organizations include the Vermont Housing and Conservation Board, Vermont Housing Finance Agency, Vermont Community Loan Fund, Evernorth. Evernorth (formerly Housing Vermont) was instrumental in the rehabilitation of one hundred four (104) units of affordable housing in Bennington. Those units, in the Applegate complex in Bennington, are an important community asset and responsive and effective long-term management of the project is critical. Other local organizations with similar missions also play a part in the region's affordable housing milieu. Bennington County Habitat for Humanity builds ownership housing for area residents. All of these organizations pursue housing development to support vibrant communities in a number of important ways:

- Creating new affordable rental units and homeownership opportunities.
- Promoting a sense of pride in the community by upgrading existing neighborhoods through renovation and restoration of existing housing stock.
- Restoring and reusing – as mixed-use buildings whenever feasible –distressed historic buildings and other infill projects to create vibrant downtowns.
- Expanding the local tax base by increasing property values.
- Making investments that act as catalysts for additional improvements by other property owners in the neighborhood.
- Using energy efficient construction practices.
- Spending construction and operating dollars in the community and on local contractors.

Other regional organizations offer important housing services to residents of the

area. NeighborWorks of Western Vermont provides a range of services to communities in southwestern Vermont. The mission of NeighborWorks is to promote safe and affordable housing, focusing on sustainable home ownership. NeighborWorks offers education, counseling, and access to affordable loans needed to purchase, improve, and help low-income community members keep their homes. An important home energy efficiency service, the "Heat Squad," operated by NeighborWorks, offers discounted home energy audits and assistance with home weatherization projects. As noted already, NeighborWorks is joining forces with Shires Housing and the Housing Trust of Rutland County. The Bennington Rutland Opportunity Council (BROC) maintains an office in Bennington and offers a variety of services to income-eligible residents. Housing-related programs include housing counseling and transitional housing, recovery from damage to homes, and home weatherization and renewable energy projects.

A number of area residents receive federal "Section 8" vouchers that provide substantial long-term rental subsidies for eligible people. The Bennington Housing Authority owns 195 housing units serving low-moderate income families and seniors and manages over two hundred (200) of these vouchers. Forty-nine housing units for low-income seniors and people with disabilities are also available in Manchester Village at the Meadows and Fields apartments, where rental costs are set at 30% of residents' incomes. The availability of these vouchers and units, however, is limited and does not meet the current demand for housing by very low-income residents of the region.

5.5 Special Housing Needs

The region's growing population of seniors has increased the demand for specialized senior housing facilities and services. A number of residential developments serving the senior community exist in the region. In addition to a number of nursing homes in Bennington, Brookdale Fillmore Pond, Washington Elms, Bennington Housing Authority's Walloomsac Apartments, and Shires Housing's Cora B. Whitney House offer apartments for seniors and people with disabilities. The Vermont Veteran's Home accommodates veterans in need of nursing care in Bennington. Equinox Village, Equinox Terrace, and Bromley Manor offer assisted and independent living for seniors, while Spruce Brook Apartments, The Meadows, and Manchester Fields offer low-income affordable apartments for seniors in Manchester.

Senior housing options are limited in the region's more rural towns, where limitations on the ability to provide regular transportation to services poses an additional challenge. Consequently, there is value to concentrating new senior housing development near the center of larger communities where services are more readily available to a population with limited mobility. Additional senior housing for all incomes is needed throughout the region but particularly for seniors with very low incomes. Shires Housing has taken a lead in providing services to seniors through the "Seniors

Aging Safely at Home" (SASH) program. SASH coordinators work with program participants to provide health support, education, and social activities that help seniors live healthy and fulfilling lives in their own homes.

People with physical or mental disabilities constitute a significant population having special housing needs in the region. These residents typically have extremely limited incomes and often require special services. According to the US Bureau of Labor Statistics, in 2022, only 21.3% of people with a disability were employed. The unemployment rate for persons with a disability was 7.6%, about twice the rate for persons without a disability. The Bennington office of the Vermont Center for Independent Living provides housing and employment support for many community members with disabilities in the region.

Another population with a critical housing need is comprised of unhoused persons in the region. The Bennington County Coalition for the Homeless provides transitional housing and a warming shelter to meet some of the needs for these homeless community members. Bennington's Project Against Violent Encounters (PAVE) also provides transitional housing to those seeking to leave abusive home situations. Some residents with very low incomes may not live "on the street," but live temporarily with friends or family because of an inability to afford housing. This population is difficult to quantify, but its numbers are significant in the region, especially in the Bennington area.

The Vermont Housing Needs Assessment, 2025-2029, reports that 312 people in 201 households were experiencing homelessness in Bennington County during the 2023 Point-In-Time (PIT) count, the highest total for the county since the annual PIT count of the homeless population began. The Vermont Housing Finance Agency (VHFA) reports the results of the count and provides data by Vermont county on the HousingData.org website. These data show homelessness increasing in Bennington County from 50 households (77 individuals) in 2019 to over 200 households (324 individuals) in 2024. However, the number of unsheltered individuals has fallen from 21 people in 2019 to 1 person in 2024. This primarily reflects increasing publicly funded hotel sheltering of people experiencing homelessness in the county. There remains a mix of transitionally housed, emergency sheltered, and unsheltered residents in the county in 2024.

5.6 Regional Housing Considerations

While the type of housing issues faced by communities varies across the region, three general regional themes are evident: (1) development of housing related to land use plans and regulations, (2) the cost of housing, and (3) design of housing developments. These issues are discussed below and are illustrated using specific examples from several communities in the region.

Housing and Land Use Planning

Goal: A variety of housing options available in both compact centers and more rural areas, with higher densities, multifamily buildings, and mixed-use developments in suitable locations in and around downtowns and village centers.

Most residential development in the region is located within lower elevation valleys, and within those areas, housing is most concentrated in and near the historic centers of communities where services and infrastructure are available (see Map 5-1). This development pattern is consistent with state and regional land use planning goals. Continued growth in these “compact centers” promotes public health, energy efficiency, the vibrancy of downtowns and village centers, and protects rural open space and natural resources.

Although there always will be some residential development in outlying rural areas, statewide planning goals, the regional land use plan, and municipal land use plans and regulations, discourage or prohibit permanent development in high elevation, mountainous, and particularly remote areas of the region. These land use policies also limit the density of allowable development in rural areas. Nonetheless, considerable potential for scattered growth in the countryside does exist. However, the lack of infrastructure, particularly public water and wastewater systems, limits the ability to locate new housing in existing village centers in the region’s smaller towns. Innovative technologies designed to address this problem is being pursued in some communities such as Arlington (discussed further in Chapter 12).

In Bennington, a lack of housing of sufficient quality for both home ownership and rentals in the town’s designated growth center is a problem. This is also a problem in and around Manchester’s village centers, particularly housing that is affordable to the town’s relatively large workforce. The shortage of affordable housing for working families and potential employees seeking housing in these areas is an impediment to economic resiliency. Workers frequently resort to finding housing well outside the town centers, and very often in other communities altogether – some in New York or Massachusetts – while others may move into houses or apartments that do not meet their needs. This discourages long-term residency, retention of workers, and community cohesion.

The BCRC is actively working to address this situation, considering ways to improve the availability of housing that meets the needs of all residents and of individuals and families seeking to move to the area. Working with property owners to upgrade the quality of rental housing and encouraging the conversion of older multifamily houses to two- or three-family units are potential solutions to the region’s housing needs, particularly in Bennington and Manchester where both demand and water and sewer infrastructure is available to support these strategies.

Pownal faces some similar concerns with the location and quality of the existing housing stock. The town has the newest public sewer system in the region and was careful to design the system to support high-density development only in established village centers. At the same time, although there is a large amount of housing in the town that is considered affordable, much of it is of poor quality and many of the town's mobile homes, in particular, are located in developments that are in flood hazard areas. There may be an opportunity for the town to work with the BCRC, Shires Housing, and other agencies and organizations to develop plans for relocation or improvement of this housing. Projects of this nature can ensure that new or relocated housing is developed outside flood hazard areas and in or near the three village centers served by Pownal's municipal wastewater system.

North Bennington Village, an historic village with relatively little land available for new housing development, amended its village plan and adopted land use regulations that allow and encourage redevelopment of historic industrial buildings for residential use. The owner of a complex of manufacturing buildings, several of which had been vacant for many years, took advantage of the new regulations and developed over thirty units of high quality affordable rental housing. The buildings now house a mix of residential, commercial, and light manufacturing uses, south of the village center, and overlooking a scenic waterfall on Paran Creek.

Housing Cost

Goal: New housing that is affordable to the region's residents and workforce.

The high cost of housing relative to income is a problem, to a greater or lesser degree, in all of the region's towns and villages. Several organizations and programs, each serving a particular market niche, work to reduce the housing cost to income gap in the region. The BCRC will work with state agencies, municipalities, regional housing organizations, and developers to plan and develop new housing that is affordable to the region's residents and workforce.

Shires Housing serves as the nonprofit housing development corporation for Bennington County, working to develop new affordable housing throughout the region while managing its existing portfolio of affordable apartments and ownership units. Shires offers affordable apartments in Bennington, North Bennington, Shaftsbury, Arlington, and Manchester. In addition to apartments, Shires manages 12 subsidized home ownership units at East Branch Farms in Manchester. Shires also owns the Willows Mobile Home Park in Bennington where it recently added four zero-energy manufactured homes on vacant lots in the park. This project to install zero-energy manufactured homes should serve as a model for new affordable housing development in other locations in the region. In addition, Shires works with the owners of older units in the Willows Mobile Home Park to weatherize and renovate their mobile homes.

In Bennington, the Shires' Roaring Branch project involved construction of 26 units of high-quality rental housing, fourteen new units on an infill lot and twelve units in a renovated historic mill, all in the town's designated growth center. With monthly rents ranging from $820 to $1300 (depending on the number of bedrooms), the cost is affordable for households with adults in the local workforce.

Bennington County Habitat for Humanity (Habitat) manages thirty subsidized home ownership units in Manchester (13), Bennington (9), Pownal (3), Arlington (2), Shaftsbury (2), and North Bennington (1). Working with pre-qualified families, Habitat builds about 2 houses per year and has approvals for thirteen more units in Manchester's Jennifer Lane and Bennington's Corcoran's Way neighborhoods. Although the Habitat projects provide affordable homes to qualified low-income buyers, Habitat's efforts can only meet a relatively small portion of the need in the region.

Housing affordability issues tend to be particularly acute in the Northshire, where the high cost of homes and land make it difficult for people who grew up in these communities to stay and for workers to find housing near their employment. A number of strategies are available to address these concerns, in addition to, or in combination with, the housing agencies and programs discussed above. The Town of Manchester has revised its land use regulations to remove barriers to housing development in the community. Those regulations allow significant increases in the number of housing units permitted on a parcel of land, particularly downtown. Clustered residential subdivisions in the more rural zoning districts receive significant density bonuses in exchange for permanent protection of open space. Another provision allows conversion of existing nonresidential buildings to multiunit residential use without regard to the density limit of the underlying zoning district.

Other municipal actions that can support the development of affordable housing include allowances for duplexes and accessory apartments without regard to lot density limits (now mandated by state law), inclusionary zoning (requiring a certain percentage of housing in a new development to be affordable), and transfer of development rights (whereby density increases in an area planned for concentrated development are permitted through a transfer from an area planned for lower density or land conservation).

Centrally located and higher density housing, while often relatively affordable, has other benefits. New housing development in these areas can provide opportunities for comfortable and efficient living for people with a range of incomes. Housing and demographic trends show a preference by many professionals and seniors for living in densely developed areas where the population supports vibrant pedestrian-oriented neighborhoods with easy access to shopping, restaurants, and other services. This kind of housing, therefore, reinforces the local economy. It also encourages people of all ages and abilities to make physical activity a part of everyday living. The resultant

concentration of infrastructure investments (such as sidewalks and bike paths), creates better options for public transportation, maintains green space, reduces air pollution, and promotes greater social interaction.

Design of Housing Developments

Goal: Housing development reflecting energy efficiency, smart growth and healthy community design principles.

Certain characteristics should be common to all new residential development within the region. These features represent the best of the region's traditional development pattern and, as such, reflect principles of "Smart Growth" and "Healthy Community Design." Development during the second half of the 20th century came to emphasize designs that were more responsive to automobiles than to people. Reversing this trend requires a renewed emphasis on the region's original form of housing development. Useful resources include Vermont Natural Resource Council's Smart Growth Grants and the Vermont Department of Health's Healthy Community Design Resource Active Living and Healthy Eating. The Department of Housing and Community Development's newly launched Homes for All Toolkit will also be a valuable resource for the region's smaller developers, supporting even very small scale first time developers to produce infill development that compliments existing neighborhoods.

Energy conservation and efficiency in new housing and redevelopment of buildings for residential use is also an important design element of healthy communities. Such design will lead to significant cost saving over time as well. Information on residential energy efficiency incentives is available at Efficiency Vermont. Vermont Residential Building Energy Standards requirements are distributed by local zoning administrators along with permits for all new residential construction, and new construction must be shown to meet those standards with a certificate recorded in local land records upon completion.

In addition to the land use principle of encouraging relatively dense housing and mixed-use developments in and around downtowns and village centers, the following design ideals support a human-scale environment that is consistent with the goals of this plan:

- Architecture is compatible with the character of the community, surrounding neighborhoods, and any historic districts, while providing some variety in design among and between structures.
- Most residential areas are served by relatively narrow streets that slow traffic and, when possible, form a connected network with existing streets to disperse traffic.
- Parking areas for cars and garages not prominent in building or site design.
- In compact centers and residential neighborhoods, buildings are sited close to

the public street and with front porches and walkways connecting to public sidewalks.

- Sidewalks and pathways traverse the development, along road edges or via more direct, protected, or scenic routes, to provide connections to public open spaces, adjacent neighborhoods, and any concentrations of public activity such as commercial areas or schools.
- Streets and sidewalks treated as public spaces and integrated with existing parks and new “pocket” parks to foster a sense of neighborhood and community.
- Landscaping is carefully planned with appropriate trees and green spaces along streets and sidewalks.
- A range of housing types (ownership, rental, one, two, or multiunit) at a range of price levels are provided.

5.7 Housing Targets

In response to an increasingly critical housing shortage faced in the state, the 2023 HOME Act required regional plans to estimate needed housing investments by price and type and to disaggregate regional targets by municipality. Furthermore, the HOME Act required municipalities to allow up to five housing units per acre in areas served by both municipal water and sewer. Many of the region’s rural municipalities are not equipped to accommodate significant increases in housing production simply because they lack wastewater infrastructure. Consequently, most of the county’s housing needs will be addressed in the municipalities that have existing wastewater capacity or those that are developing new wastewater systems.

The region’s two largest towns, Bennington and Manchester, have sewer capacity and also have water systems that serve major portions of each town. The incorporated villages of Old Bennington and Manchester Village are also largely served by these sewer and water systems. North Bennington operates its own water system and is largely served by the town sewer system. Pownal has existing sewer and water systems serving two of its designated villages. Arlington is actively seeking to expand a municipal sewer system to serve its designated villages to accommodate infill housing development. Therefore, the housing needs of the region will mostly be addressed in these four towns.

Dorset and Shaftsbury could be positioned to accept infill and new housing development if community wastewater systems can be developed to serve targeted areas within their borders. In Dorset, recent upgrades to the drinking water system in Dorset Village lifted a permitting moratorium that had prevented any development until significant infrastructural investments could be made. In Shaftsbury, this would most likely be in the designated South Shaftsbury village center where there is potential for infill housing. Furthermore, the design and permitting of smaller community wastewater systems could enable concentrated housing development in some of the region’s more

rural villages such as Rupert, but such systems have yet to be pursued in the region or permitted by the Vermont Department of Environmental Conservation. Given this, targets for the region's most rural municipalities will largely reflect existing annual permit trends for new housing units in each of these towns.

Municipal participation in the state's various designation programs will also play a role in capacity for new housing. With this consideration, particular attention is paid to Bennington's Growth Center, and Manchester's Neighborhood Development Area. Each designation expands upon a developed core (the designated downtown in Bennington, the designated village center in Manchester) to encourage private investment and development in adjacent areas, particularly pedestrian-oriented housing development that will encourage economic activity within that core without adversely impacting rural forest and farmland.

The preceding sections of this chapter have detailed, among other important characteristics, the overall lack of fit between the region's housing stock and its household composition. As is true throughout Vermont, there are significantly more households with two or fewer people than there are housing units of one or two bedrooms. In Bennington County, for example, only thirteen percent of housing units are studio or one-bedroom structures, while nearly one-third of the county's residents are individuals living alone. Meanwhile, on the other side of the spectrum, one in four housing units have four or more bedrooms, while just one in six residences has four or more people living in it. The remainder of this section examines how the region and its constituent municipalities could remedy a status quo that currently limits options for first-time homebuyers looking to enter the market, for senior citizens looking to downsize, and for renters looking to preserve flexibility, and for households who wish to adjust their housing size and scale without having to leave the communities where they have put down roots.

The Vermont Housing Needs Assessment, prepared by the Vermont Housing Finance Agency (VHFA), shows a housing target for Bennington County of at least 958 to 1588 new units by the end of 2029.[8] As of this writing, county 2050 targets have not yet been established by the VHFA. Table 5-2 shows annual housing targets for each municipality in the Bennington region. A cumulative target of 1,086 units is disaggregated to the region's 17 municipalities reflecting existing public water and wastewater capacities, local residential density allowances, average annual municipal permits for new housing units for the last five years, and housing needs and market demands as reflected in recent studies conducted in Bennington and Manchester. To meet targets, the region's average new residential permits will have to increase from

[8] Homes in Winhall, Searsburg, and Readsboro comprise about 11% of the county housing stock, but these towns are not part of the Bennington region. Adjusted accordingly, a regional target of 853 to 1,413 units over the next 6 years can be expected for the Bennington region.

about 76 to 181 units annually.

Table 5-2 also breaks down targets by housing type. As reported in the Vermont Housing Needs Assessment, although most Bennington County households are comprised of one to two people (70%), most of the housing stock consists of units with three or more bedrooms (64%). Consequently, an important piece of the puzzle will involve increasing the number of studio and one- and two-bedroom units to allow downsizing for young workers, empty-nesters, and retirees that will then free up larger homes for larger households. Therefore, 55% of new units over the next five years should be smaller units with less than three bedrooms. Forty-seven percent of the new units should be rental units, primarily in Bennington and Manchester. Most rental units will be part of multiunit construction, with some ownership multiunit homes. However, most towns in the region will be unlikely to host multiunit development.

Table 5-2: Annual Municipal Housing Targets for the Bennington Region, 2024-2029. *Targets are disaggregated for Bennington region municipalities. Average annual residential units permitted in each municipality from 2019-2023 shown for comparison (5-year Annual Average).*

Municipality	5-year Annual Average	6-year Target	ADU	One Unit	Two Unit	3-5 Unit	5+ Unit	0-1 BR	2 BR	3 BR	4+ BR	Own	Rent
Arlington	4.4	50	10	15	8	12	5	10	15	20	5	30	20
Bennington	20.8	500	20	130	20	50	280	140	200	148	12	200	300
North Bennington	6.2	50	5	15	6	14	10	10	15	20	5	25	25
Old Bennington	0	10	2	4	0	4	0	3	3	0	4	7	3
Dorset	4.4	40	6	22	4	3	5	5	10	20	5	24	16
Glastenbury	0	0	0	0	0	0	0	0	0	0	0	0	0
Landgrove	1	8	2	6	0	0	0	2	0	2	4	6	2
Manchester	13.2	200	10	70	20	50	50	25	75	55	45	125	75
Manchester Village	2.6	50	4	25	2	14	5	5	15	15	15	35	15
Peru	2	12	2	6	4	0	0	2	0	8	2	8	4
Pownal	5.8	50	10	18	8	9	5	10	10	25	5	30	20
Rupert	0.2	8	2	4	2	0	0	2	0	5	1	5	3
Sandgate	0.6	6	1	3	2	0	0	1	1	3	1	4	2
Shaftsbury	6.6	42	8	26	4	4	0	10	10	16	6	32	10
Stamford	3.6	24	4	16	4	0	0	2	2	10	10	18	6
Sunderland	4.4	30	6	18	6	0	0	5	5	15	5	22	8
Woodford	0.4	6	2	2	2	0	0	2	2	2	0	3	3
Total	**75.8**	**1086**	**94**	**380**	**92**	**160**	**360**	**234**	**363**	**364**	**125**	**573**	**513**

The BCRC has worked in the last few years with its member municipalities to bring their zoning regulations up to HOME Act standards. Consequently, an increase in the numbers of accessory dwelling units (ADUs) and duplexes is possible throughout the region and the targets presented in Table 5-2 reflect increased potential for these kinds of units. All but a few towns and villages can be expected to see some duplex development in the coming years. The BCRC will promote the Homes for All Toolkit to

encourage other forms of small-scale infill development throughout the region.

The VHFA assessment for Bennington County reports:

- 50% of households (7,338) have incomes below the Area Median Income (AMI) of $68,558;
- most of the year-round owner- and renter-occupied stock consists of single-unit detached homes (73%); and
- the ratio of home prices to household income is 3.8, reflecting that households on average are paying more than 30% of their income on housing costs and are thus considered cost burdened.

A housing needs assessment for the Town of Bennington in particular was conducted in 2021 by Camion Associates and the BCRC for the Energizer Reuse Study. It found that renter households in the town were the most cost burdened, with 41% of renter households paying more than 30% of their income on housing, and 21% were severely cost burdened paying more than 50%. By comparison, 31% of owner households were cost burdened with 9% severely const burdened. Consequently, there is a clear need for smaller and low-cost units in the Town of Bennington as well as in the region as a whole. Most new housing in the coming years will have to be for low- to moderate-income households, primarily in Bennington, with a mix of market rate and subsidized affordable options throughout the rest of the region, particularly in Manchester.

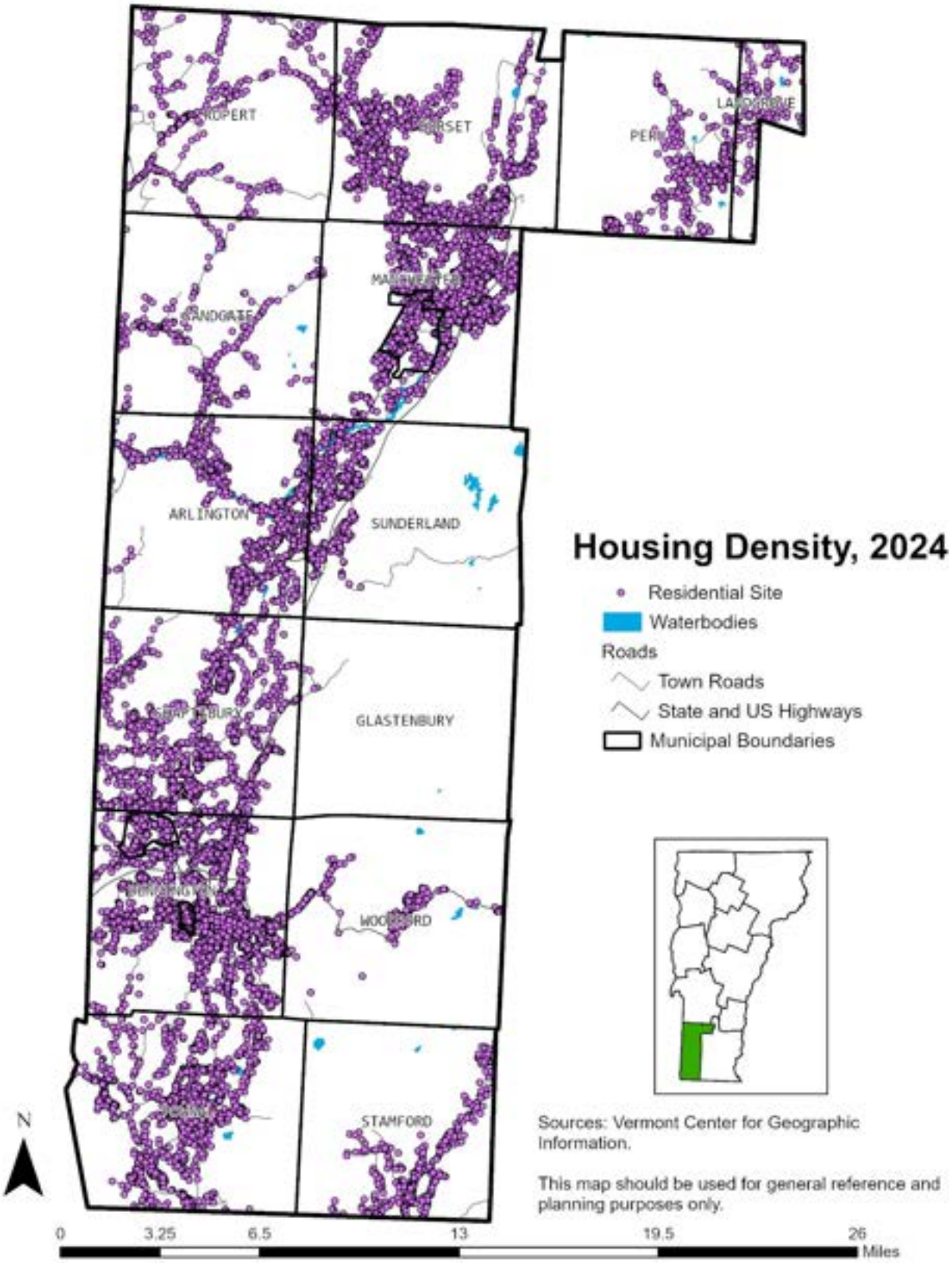
Repurposing large formerly industrial buildings such as the former Energizer battery facility and the old Bennington High School building has great potential to provide the kind of low-to-moderately priced rentals needed in Bennington. In Manchester, the 2020 Downtown Manchester Mixed-Use Development Market Feasibility Study recommend a mix of repurposing retail space and new construction to provide residential units for small households at a mix of price points, with about half at market rate and half for low- to moderate-income households. Other opportunities, particularly in Bennington and Manchester, including their incorporated villages, involve repurposing large formerly single-unit homes to serve as smaller multiunit condominiums or rentals at higher price points. Motel facilities throughout the region also have potential to be repurposed into low-cost multiunit housing. This has been happening over the course of the last several years, but there remains significant potential in this realm in the region's most populous towns.

5.8 Recommended Housing Actions

According to state law - 24 VSA §4348a(9) - the housing element must "include a set of recommended actions to satisfy the established needs" expressed in the regional plan. The following actions will be pursued by the BCRC to help achieve the housing targets set forth in Table 5-2.

1. The BCRC will assist its member municipalities to adopt plans with housing elements that assess housing issues and needs in their communities and that establish strategies to address the identified needs and to meet targets as established in this plan.
2. The BCRC will assist municipalities to adopt and implement local land use regulations that make provisions to allow for adequate supplies of quality and energy efficient housing of various sizes and types in appropriate densities.
3. The BCRC will assist municipalities to pursue investments in infrastructure that support the development of new housing to meet the targets established in this plan.
4. The BCRC will work with its member municipalities, public and non-profit housing organizations, and private developers to assist in the planning and development of new or rehabilitated quality housing that is affordable to residents of the region and to potential members of the workforce who are seeking housing in the area.
5. The BCRC will work with regional partners to support development of additional housing that meets the needs of the region's seniors and residents with disabilities, as well as those with special needs and very low incomes. This housing should be in or near town and village centers where services are conveniently available.
6. In its efforts, the BCRC will prioritize development of housing on vacant "infill" lots, in the upper stories of downtown buildings, and remediation and redevelopment of vacant or underused buildings and "brownfield" sites for housing in compact centers.
7. The BCRC will support state and local efforts to house people experiencing homelessness.
8. The BCRC will encourage and facilitate, as appropriate, the use of public assets such as buildings, land, and financing, to help reduce the cost of housing development and support creation of affordable housing.
9. The BCRC will organize an annual regional housing summit that will highlight programs aimed to assist in housing development and report on progress toward the region's housing targets.

Map 5-1. Housing Density in the Bennington Region.



6 EDUCATION AND CHILDCARE

6.1 Educational Context

The region's educational system, from pre-kindergarten through college, is critical to the social and economic well-being of the area. A good education provides the basis for a productive future for the region's children while teaching skills that are needed to sustain and grow local businesses and to lead healthy lives.

Schools often provide the fabric that ties together local communities. Parents and other residents have a vested interest in their local schools and work to ensure that they are adequately funded and operated to meet the needs of community members. Schools also are a venue for people to come together for scholastic athletic events, cultural presentations, special events, public gatherings, and official public meetings.

The region's colleges present significant opportunities in numerous ways. Not only are they important economic assets in and of themselves, but they also provide training in a range of skills, attract diverse and talented students and faculty, contribute to the cultural landscape of the area, offer tangible benefits to the economy by supporting businesses that are frequented by students, and provide technical support to local agencies through student internships and similar interactions.

More education and training opportunities are being provided through on-line courses and degree programs, many of which are coordinated through, and supplemented by, local schools and institutions such as Southwest Vermont Technical Center, the Community College of Vermont, and Vermont Technical College. Organizations such as the Green Mountain Academy for Lifelong Learning in Manchester and the Vermont Arts Exchange in Bennington offer accessible and diversified educational programs to the public for people of all ages. Of course, a good telecommunication network makes course offerings from colleges and universities around the country available to local residents. Developing and maintaining comprehensive broadband to serve schools, colleges, libraries, and the general population is critical to achieving educational and community development objectives for the region.

Several organizations have some responsibility for supporting the advancement of local and regional educational objectives. Supervisory unions oversee and administer local schools. They provide services such as curriculum development, special education services, and financial and data management. School districts are responsible for one or more schools in one or more towns or, in the case of a district without a school, they are responsible for paying tuition for resident students. Some of this region's supervisory unions and school districts have been reconfigured since the enactment of Act 46 in 2015 which created new school districts and dissolved a supervisory union. The Bennington-Rutland Supervisory Union (BRSU) now includes the Mettawee

Community School District, the Taconic and Green Regional School District, and the Winhall School District. The Battenkill Valley Supervisory Union which once oversaw Arlington School District and Sandgate School District was dissolved in 2021. Arlington and Sandgate School Districts are now part of the Southwest Vermont Supervisory Union (SVSU) which also includes Mount Anthony Union School District #14, North Bennington School District, and Southwest Vermont Union Elementary School District. Stamford School District is now a part of Windsor Southwest Supervisory Union.

The Bennington County School and Workforce Partnership was reorganized to function as the Workforce and Education Committee of the Bennington County Regional Commission. Representatives from public school systems, colleges, local government, businesses, and the BCRC work together to support educational efforts, promote career pathway activities and events, provide a clear avenue of communication between the schools and local communities, and to oversee special programs and projects. Recent activities have included a Financial Reality Fair, the Sophomore Summit exposing students throughout the region to a wide range of educational and career pathway events suitable for students and adults. The BCRC Workforce and Education Committee also sponsors two annual job fairs with the Vermont Department of Labor and the Southwestern Vermont Chamber of Commerce.

Maintenance of a quality educational system that is affordable to residents while also meeting the needs of students, local communities, and businesses will require continuing communication and coordination between many involved public and private interests. The following sections provide some background on existing educational institutions and challenges that will need to be addressed in the coming years.

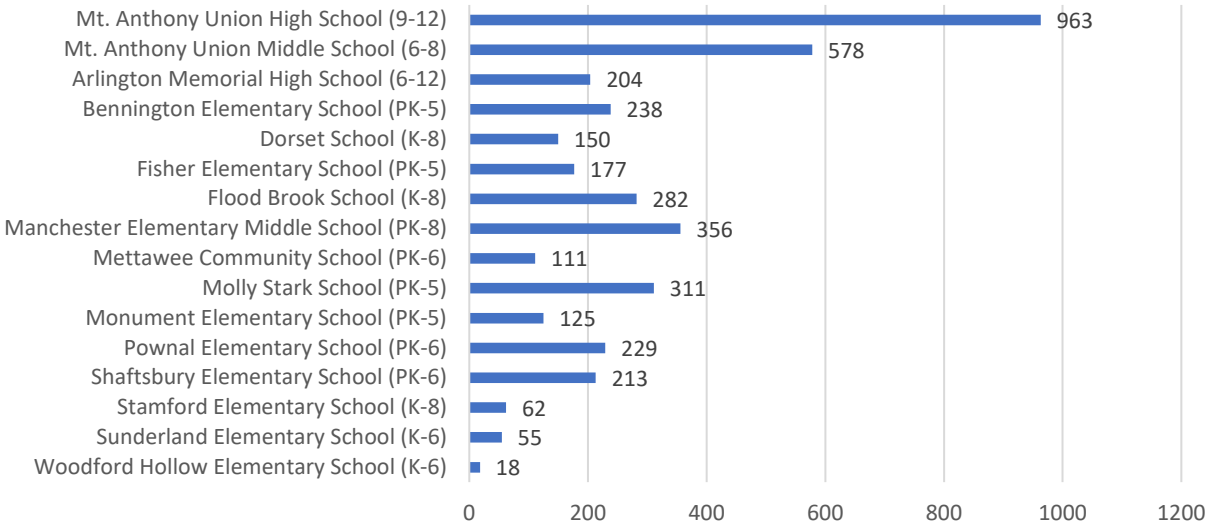
6.2 Schools in the Region

Schools in the region are shown on Map 6-1. Local school districts operate public elementary schools in Stamford, Pownal, Woodford, Bennington (three schools), Shaftsbury, Arlington, Sunderland, Manchester, and Dorset. Peru and Landgrove are part of the Taconic and Green School District and students from these communities (grades K-8) primarily attend school at Flood Brook Elementary School in Londonderry. Rupert sends students to Mettawee Community School which is part of Mettawee Community School District.

Based on data from the 2021-2022 school year, enrollment of students in the region's public elementary schools ranges from a low of 18 in Woodford to a high of 356 in Manchester Elementary Middle School (a K-8 school) and 309 in Molly Stark in Bennington (see Figure 6-1). The various pre-kindergarten programs at these schools include approximately 450 children. However, pre-K enrollment is tracked separately and more information on early childhood education is included in Section 6.5.

Figure 6-1: Bennington Regional Public School Enrollment

Data from the Vermont Agency of Education 2021-2022, Excludes the Pre-K population



Mount Anthony Union High School in Bennington is the largest school in the region and the public high school serving most of the communities in the Southshire (many high school students from Stamford attend high school in nearby North Adams, Massachusetts). The Mount Anthony Union School District also operates a middle school in Bennington; it serves Bennington students in grades 6-8 and students in grades 7-8 from most of the other Southshire towns. Arlington Memorial High School includes a middle school wing (grades 6-8) and the senior high school. The high school serves students from Arlington, residents of districts that offer "school choice" such as Sandgate, and residents of the BRSU districts. Almost 1,750 students attend the middle schools and high schools in Bennington and Arlington.

A number of private and independent schools, both elementary and secondary, also operate in the region (see Figure 6-2). During the 2021-2022 school year, private school enrollment totaled 1,785, or approximately 37 percent of the total student enrollment.[9] Of course, it is important to note that private school enrollment does not necessarily reflect student population within the region as students from outside the region attend some of these schools (just as students from within the region attend private schools in other areas).

While there are a significant number of students attending private schools at all grade levels, the greatest number attend the two private secondary schools in the Northshire, Burr and Burton Academy and Long Trail School. All of the BRSU school districts, and several towns outside the region, offer high school students "school choice" since there is no public high school within the BRSU district. Towns offer a

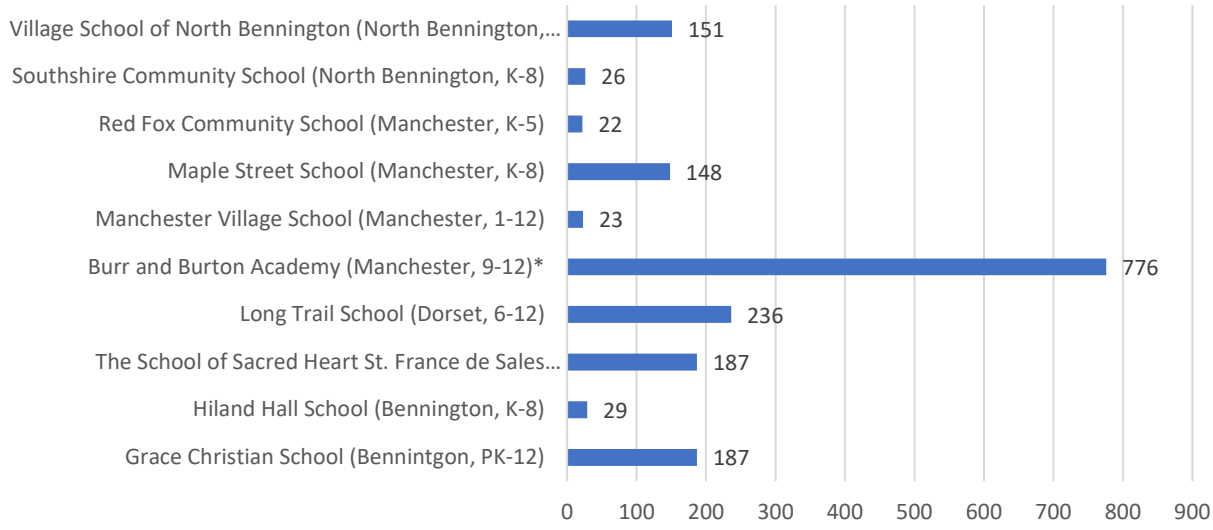
[9] Based on enrollment numbers reported to the BCRC from each independent school.

tuition rate to students based primarily on the current state average per pupil cost, and families can opt to use those funds to attend a high school of their choice, with the largest portion choosing to send students to Burr and Burton Academy.

Some families choose to provide education to their children at home; 194 children within the region obtained their education through home-study based curricula in 2022. Home schooled students are able to participate in certain activities at local schools. Information on home-study options is available through the Home Study office of the Vermont Agency of Education.

Figure 6-2: Bennington Region Private School Enrollment

Data self reported by each school for SY 2021-2022.



The Southwest Vermont Regional School District operates a technical education center serving towns throughout the region. This school is one of 16 regional technical centers throughout the state. Southwest Tech (formerly known at Southwest Vermont Career Development Center), which shares a site with Mount Anthony Union High School in Bennington, has a mission to “prepare secondary and post-secondary students for career and lifelong learning in a rapidly changing world.” Southwest Tech offers 20 technical programs and related classes for high school age students. In the afternoons, evenings, and online, a wide variety of adult education offerings are also available. Vermont resident adults who do not have a high school diploma are considered secondary students and are eligible for tuition to be paid by their school district. Adults with high school diplomas are charged tuition. Recent cooperation between Southwest Tech, and many of the public primary and secondary schools in the region, local businesses, and economic development interests have led to specific programs and course offerings that inform students of career opportunities in the region and provide the types of skills being sought by employers.

6.3 Post-secondary Education

Acquisition of some type of post-secondary degree or specialized training is becoming increasingly important – for both residents seeking a good career and for businesses faced with a need for a workforce with the skills needed to compete in a global marketplace. At the same time, the cost of a college education has increased rapidly, deterring many people from pursuing a degree and saddling many others with student debts that limit their ability to procure adequate housing or achieve the quality of life that their training should have helped to facilitate.

While there is no municipal or regional solution to this challenging set of circumstances, programs offered through the Vermont State College system (including CCV and VTC) can lead to a degree or certificate at a relatively low cost. Many people find that attending one of these local Vermont state institutions for one or two years and then transferring to a different college or university to complete a degree program significantly reduces total cost and subsequent student debt.

Post-secondary vocational training and adult education courses, targeted to meet the needs of local employers, are available and should be expanded to help qualify local residents for jobs available in the local labor market. Employers may also be willing to help existing employees with the cost of such programs so that they can progress to more advanced jobs that meet the needs of growing and diversifying businesses. As noted earlier, another key – and affordable – way to obtain college level or other advanced training is through online learning. Availability of broadband throughout the region and communication about classes and degrees offered will help assure that such opportunities are available to residents of the region.

Bennington is home to four colleges: Bennington College, units of the Community College of Vermont (CCV), Vermont Technical College (VTC), and the Northeast Baptist College. Each of the colleges provides important services and imparts significant benefits to the region. Bennington College is a four-year liberal arts institution offering individualized bachelor's degrees. The college also offers graduate programs in writing, language, performing arts, and pre-medical studies. Bennington College occupies a sprawling campus in North Bennington, conserving valued open spaces and offering recreational opportunities for both students and area residents. This school also presents regular public lectures, concerts, plays, art exhibits, and other events that contribute to the cultural richness of the region.

In 2019, Southern Vermont College, a private college located in Bennington, closed its doors due to a loss of accreditation and financial issues. This closure affected approximately 340 students, and approximately 100 staff members both faculty and non-faculty and left the campus vacant. Colleges act as a way to pull in a younger demographic to an ageing state and the closure of a college within Bennington has had a negative impact on the area with a loss of jobs and money being spent by the

students.

Vermont Technical College, part of Vermont State Colleges, offers a degree program in nursing from its downtown Bennington location where it occupies two floors of an historic building renovated for the school. The Community College of Vermont, occupying space in another renovated downtown Bennington building which it shares with the Vermont Department of Health local offices, offers classroom and online instruction in twenty degree and six certificate programs, workforce, secondary and continuing education opportunities, and academic and veterans support services.

The Northeast Baptist College, founded in 2013 is the newest post-secondary institution to locate in Bennington. It shares space with the (K-12) Grace Christian School while also utilizing buildings near the downtown. Degree programs in ministry, education, and music are offered.

There are nearly 2,000 students attending college among the four Bennington campuses. These students represent a tremendous asset to the town and region and efforts to more fully involve students in the community have been given considerable attention recently. Internships and other opportunities to work with local businesses and other organizations provide learning opportunities for the students while increasing productivity and developing interest in those jobs among people preparing to enter the workforce. A greater student presence in the downtown area also has mutual benefits as students spend money while enjoying local stores, cafés, and restaurants. The possibility of establishing a college-operated business in downtown Bennington has been explored with Bennington College. Such a business would provide another venue for students in town while encouraging growth and development of businesses to serve this population.

Bennington College, and the Northeast Baptist College classrooms are located some distance from the center of town; consequently, it is important to have regular and convenient transportation connections available to students. Bennington College operates shuttle buses and the Green Mountain Express includes the campus on their regular transit routes. Enhancing these links by increasing the frequency of trips has been considered and expansion of opportunities for bicycling also would increase community-campus interaction. Efforts have been underway in recent years to develop a path from Bennington College to downtown Bennington. Phase I has been completed and Phase II of this project is currently underway. Another important way to improve connections between the colleges and communities in the region is to improve communication links that provide information about happenings on the campuses and in the community.

Thanks to its location in the southwestern corner of Vermont, the Bennington region also has ready access to colleges and universities of national significance such as Williams College (10 minutes south of Pownal), Rensselaer Polytechnic Institute (40

minutes west of Bennington), and the University at Albany (one hour west of Bennington). Many programs at these institutions are available to area residents, and municipalities and businesses have benefited from student and faculty projects. Examples include a lighting study of the Bennington Battle Monument, a traffic calming study for Old Bennington, and applications of advanced materials research for local composites manufacturers.

The college campuses in the region are all located in the Southshire, and colleges and universities in neighboring states are closer to Bennington than to Manchester and other Northshire towns. It may be beneficial to residents of those towns in the Northshire for CCV and other institutions to offer classes in Manchester, making use of telecommunication technologies to provide distance learning opportunities more locally.

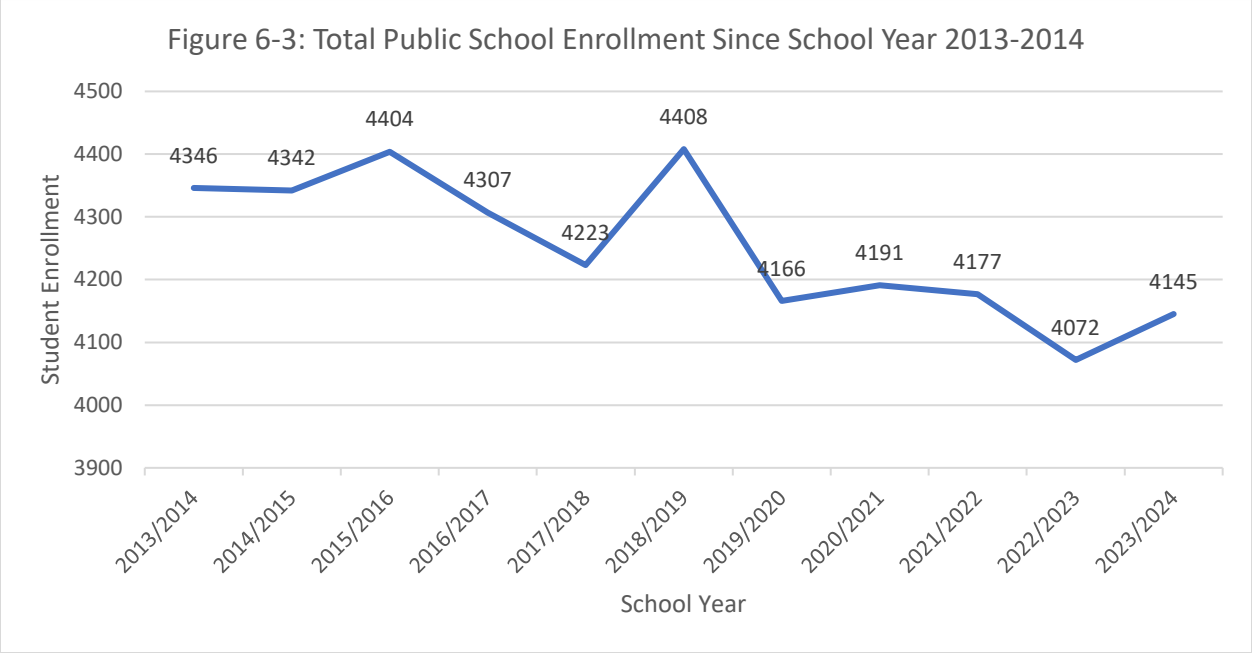
6.4 Education Cost

The cost of education – at all levels – is considerable and presents challenges to individuals, families, and communities. For local public schools, costs are driven by total school district spending that includes salaries and wages for faculty and staff, building infrastructure (maintenance, utilities, bonded construction, or improvements), transportation, administration, supplies, and other operational expenses. Towns and villages without a school, of course, pay tuition to a school district and that tuition is determined by those same factors. Most school funding derives from property taxes and because of the way that Vermont funds education, enrollment levels play a key role in determining local property tax levels.

School districts receive funds from a statewide property tax pool based on the number of enrolled students. When a district's per student cost exceeds a state-defined amount, financial penalties are imposed on the district. With so many educational costs essentially fixed – primarily faculty and staff contracts and physical plant operations – declines in enrollment have a doubly adverse impact in that they result in both reduced state funding and increased per student costs. When enrollment levels decline sufficiently, districts are forced to consider eliminating programs or cutting teaching positions (often by increasing class sizes) and when the number of students hits a critical level it can threaten the viability of the school.

Regional public-school enrollment has fallen by approximately five percent from 2013 to 2023 (see Figure 6-3). Many of the public schools in the region have seen some level of enrollment decline, although Stamford, Flood Brook, and Mount Anthony Union High school have had small increases. Both Fisher Elementary School and Arlington Memorial High School have had slightly larger increases of 13% and 9% respectively. The pandemic hit schools the hardest in the 2019/2020 school year with the region seeing a 5.5% decrease in enrollment and home study numbers increasing from 2588 to 5504 in the following school year. Home study enrollment has steadily decreased

since then but is still higher than pre-pandemic numbers, and public-school enrollment has not rebounded since the pandemic.



Several school districts have struggled with declining enrollment and considered various ways to reduce costs. Several schools have added a pre-kindergarten program to attract additional students, some schools have merged grades and reduced staffing, and various school consolidation plans have been considered throughout the region. Woodford Hollow Elementary school, which has a small number of students, shares a principal and art teacher with Shaftsbury Elementary School and a media specialist with Monument Elementary School to reduce costs. The closing of a school in a smaller town, where there is only one elementary school, tends never to be a popular option because it would result in the loss of a valued community asset, reduced “local control” over education decisions, and the need for young students to travel greater distances to attend school. On the other hand, school consolidation can reduce local property tax burden and provide students with a greater range of educational offerings.

Act 46 required many school districts and supervisory unions to consolidate to better manage costs, maximize operational efficiencies and allow the flexibility of shared resources. It was under this act that Battenkill Valley Supervisory Union merged with Southwest Vermont Supervisory Union and the Taconic and Green School District was formed. Ideally, smaller school districts tend to have the highest per-student costs. However, according to Vermont Agency of Education data, Taconic & Green School District saw the highest per-student costs (2023-2024 school year), well above the state average, while Mount Anthony Union High School District (which includes both the high school and middle school) experienced the lowest per-student costs. Taconic and Green’s per pupil spending was $20,859.34 for 1,662.47 equalized pupils while Mount

Anthony UHSD was $15,068.48 for 1,678.22 equalized pupils.

School districts will need to continue to investigate cost-saving options if recent demographic trends (an aging and declining regional population) continue and cost of living continues to rise. Relaxing policies related to maximum class size, sharing programs and resources between schools, and the potential for school consolidations all will continue to be discussed to deal with cost concerns. Because local property taxes are a combination of school and municipal taxes, it is important for all school districts to communicate with officials in local government to ensure that expenditures are planned to avoid extreme year-to-year fluctuations in tax rates. Preparation of a multi-year capital budget that considers all major projected municipal and school expenditures can be a helpful financial planning tool.

6.5 Childcare and Early Childhood Education

Childcare and early childhood education (pre-school and pre-kindergarten) are key components of the region's early childhood system; a system that also includes access to health care, developmental services, and programs that support a family's economic security and stability. All of these elements must work together to ensure that children have a strong foundation that offers the best potential for success in school and beyond.

Availability of high quality and affordable childcare services in convenient locations contributes to family economic security and stability by allowing parents to enter or stay in the workforce. With the supply of labor in the region limited, the ability of those parents to hold jobs at local businesses is also a key factor supporting economic development objectives. Some families may prefer to have their children in home-based day care centers and others in a larger facility. In either case, the location of the childcare facility must be convenient for the family – generally either near their home or near their workplace.

The Bennington region is served by a variety of childcare facilities ranging from registered home providers to licensed centers that include Head Start programs in several towns, pre-school programs, and the pre-kindergarten programs that now are offered in many of the elementary schools. Licensed childcare centers are approved by the state to serve a certain number of children of specified ages based on available approved space, staffing qualifications, and play and learning equipment. A licensed center is considered a public building and must obtain permits for water supply and wastewater disposal from the Department of Environmental Conservation and pass an inspection conducted by the Department of Labor and Industry. Registered childcare homes are limited to serving a relatively small number of children within the provider's residence.

The geographic distribution of childcare facilities around the region is interesting (See Table 6-1). The three parts of the region (Northshire, Southshire, and the central

towns of Arlington, Sandgate, and Sunderland) each have a number of licensed childcare centers roughly proportionate to their respective populations. However, while there are 23 registered home providers in the Southshire, there are none in the central towns or the Northshire. It is possible that the large, established licensed centers in the Northshire – including programs offered at the schools – meets the demand for services in that area. It also is possible that because many people commute to work in Manchester or Bennington families are using providers closer to their homes.

Table 6-1. Distribution of Daycare Facilities in the Bennington Region, 2023.

Town	Licensed Center	Registered Home
Bennington	19	16
Pownal	2	4
Shaftsbury	2	1
Stamford	1	2
Total Southshire	***24***	***23***
Arlington	2	0
Sunderland	1	0
Total Central Towns	***3***	***0***
Dorset	2	0
Manchester	8	0
Total Northshire	***10***	***0***
Total Region	**37**	**23**

Since 2015, the number of licensed facilities has increased by only one throughout the region, and the number of registered homes has decreased from 37 to 23. Some of these centers or registered homes can only accept a limited number of children. The younger the age, the fewer they can take. Also, some of the licensed centers included in Table 6-1 are only licensed for pre-kindergarten students or for after school care for school age students. This leaves even fewer spots for infants and toddlers. The central towns of Sunderland and Arlington are an example of this. Two of the three licensed centers are for pre-k or school age students only, leaving just one center with infant and toddler spots. Only half of the licensed centers take infants and toddlers in the Northshire and only 13 centers take all ages in the Southshire.

The Covid 19 pandemic hit registered home childcares hard as operating costs increased and many families who were already home-schooling children or working from home kept their younger ones at home with them lowering enrollment rates.[10] The lack of childcare within the region, especially in central and Northshire towns is problematic. There is greater demand than supply which leaves families struggling to find care for their children and removing individuals from the workforce in order to stay

[10] Child Care Crunch: Lack of enrollment, pandemic expenses hit Vt. providers (wcax.com)

home with their children.

Aside from the pandemic's effects, childcare providers face other challenges. The cost of childcare services must be limited, or the service will be unaffordable relative to the extra income that can be earned by a parent considering entering the workforce versus staying at home to care for a child or children. Another financial issue arose recently as public elementary schools began to offer pre-kindergarten classes at no cost to families, thus attracting children away from childcare providers and reducing their revenues. If childcare centers cannot raise adequate revenue, they cannot hire and retain staff and maintain program and facility quality. Programs like Head Start, operated by or in collaboration with United Counseling Service at centers throughout the region, offer lower cost or free pre-school services for income-eligible families. State subsidies are also available to help families pay for childcare services.

It is important for childcare providers to have access to a supply of labor that includes people trained and qualified to provide services. The human services curriculum at Southwest Tech provides training that can lead to employment in childcare. Students should be made aware of childcare career opportunities during their secondary school years. Business assistance is another need for many childcare providers which Vermont First Children's Finance (VT FCF) can provide. VT FCF supports childcare centers by providing business consulting, financial analysis, and assisting centers in finding business loans. These services are provided at no cost to the centers.

The 2023 childcare law (Act 76) was designed to alleviate some of the issues caused by lack of childcare. It will do so by addressing the accessibility, affordability, and quality of childcare throughout the state. The new law will invest $125 million into Vermont's childcare system over two years. These funds will provide financial assistance to 7,450 families that were not eligible for assistance before. The law also provides funding to increase childcare program capacity and investment in the early childhood education workforce. More information about Act 76 can be found on the Vermont Department for Children and Families (DCF) website.

The potential positive impacts of Act 76 on the operating economics of childcare centers, childcare workers, and significant positive long-term impacts that the resulting access and affordability improvements could make to pre-kindergarten students later in life is significant. Furthermore, Vermont has taken a measured risk with Act 76 and stands alone nationwide in implementing structural recommendations from national childcare experts in ways that other states have not. Consequently, the law could play an important role in attracting to the region a much-needed expanded workforce.

Regulatory issues tend not to be major constraints to the establishment of childcare facilities in the region. Larger communities permit large new childcare centers in suitable locations and all towns and villages are required to allow small home-based

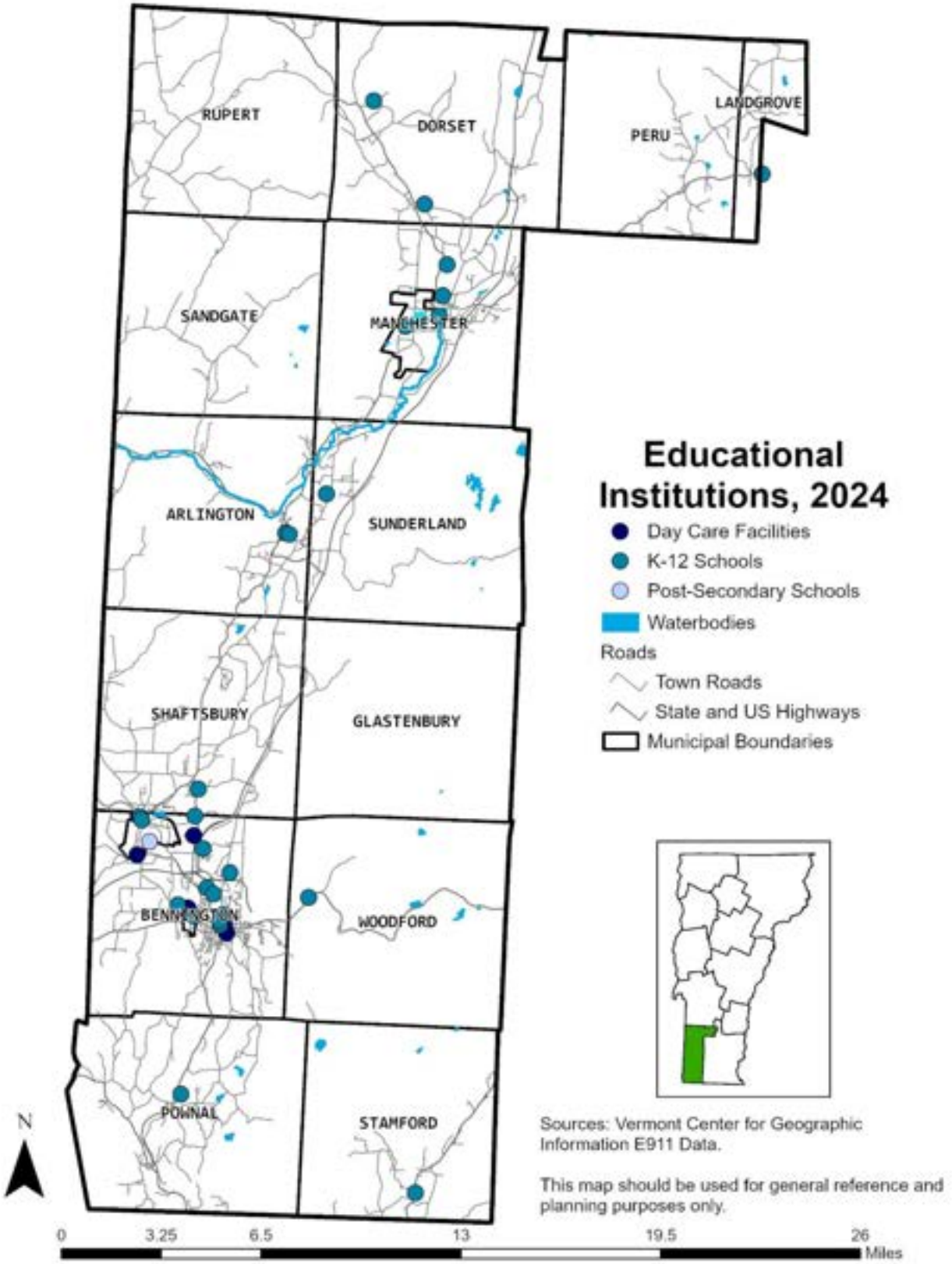
childcare facilities as a permitted use wherever single-family homes are allowed. Somewhat larger home-based childcare facilities are allowed by many municipalities as a conditional use in residential zoning districts.

6.6 Education and Childcare Actions

1. The BCRC will work with the region's educational providers to help maintain a high-quality educational system that meets the needs of residents of all ages and that supports regional economic development.
2. The BCRC will help encourage school districts and supervisory unions to regularly assess spending levels and evaluate potential policy and operational changes that can improve cost effectiveness.
3. The BCRC will continue to monitor enrollment trends at public and private schools to aid in the evaluation of operational or structural changes that may be appropriate.
4. The BCRC will support cooperative financial planning between school districts and municipal governments to minimize year-to-year fluctuations in property taxes.
5. The BCRC will encourage capital budgets and programs by municipalities and school districts to assist in forecasting major future education expenditures.
6. The BCRC will help pursue arrangements that allow for community use of school facilities for physical activity and recreation.
7. The BCRC will sponsor workforce development initiatives that emphasize increasing awareness of career opportunities within the region and which match education and training with the needs of area employers. This will include sponsoring at least two annual job fairs with the Vermont Department of Labor and the Southwestern Vermont Chamber of Commerce, the annual Financial Reality Fair, and the annual Sophomore Summit.
8. Expand the integration of Bennington's four colleges into the region's communities through student internships, development of student-oriented local businesses, improved transportation and communication links and exploring the possibility of offering on-site college classes in the Northshire.
9. Support adult learning and vocational training opportunities, especially those provided through the Southwest Vermont Career Development Center and the Community College of Vermont.
10. Continue to support the provision of quality childcare and early childhood education facilities. Assess whether all parts of the region are adequately served and if additional capacity is needed to help grow the local workforce.

11. Encourage greater coordination between childcare centers and other regional institutions that impact or are impacted by long-term educational and well-being outcomes.
12. Develop and maintain comprehensive broadband services for schools, colleges, libraries, and the general population of the region.
13. The BCRC will support efforts to more fully involve the region's college students in the communities of Bennington and surrounding towns.
14. Enhance shuttle and bus links between college campuses and the urban and village centers of the region.
15. The BCRC is supportive of the idea of establishing a CCV location in Manchester – for a Northshire presence.

Map 6-1. Educational Institutions in the Bennington Region.



7 ECONOMIC DEVELOPMENT

7.1 Context

Since the last regional plan, unanticipated shocks and emerging technologies have impacted the economic landscape at home and nationwide. Four key metrics are presented below.

1. *Major Measurements: Gross Domestic Product*

   Bennington County's economy has grown considerably since 2017, increasing its gross domestic product (GDP) by 22 percent between 2017 and 2022. That year, GDP – the value of all the goods and services produced within Bennington County – reached $2.05 billion, or five percent of the state total. This level of growth more than doubled the national GDP growth of 10 percent, but slightly trailed the state's GDP increase of 25 percent in that same period.

2. *Major Measurements: Income*

   Estimates of Bennington County's median household income (MHI) reached $68,558 for all households in 2022, a 40 percent increase over the 2012 MHI. This rate of growth slightly outpaced Vermont's 37 percent increase in that time, although the region still trails the state's $74,014 MHI. National MHI fared slightly better than the state or region, rising from $53,000 in 2012 to $75,150 in 2022, a 42 percent increase.

3. *Major Measurements: Wages*

   Between 2017 and 2022, wages rose by a remarkable 26.2 percent nationwide. In Vermont, the relative growth was even stronger, at 29.1 percent ($59,606). Encouragingly, Bennington County's wage growth exceeded the state's, with a 30.6 percent gain ($54,583). Wage gains were stronger in the private sector, and more concentrated in the service producing domain than in the goods producing domain. Gains were especially strong in financial activities and professional services, but also in lower-paying industries including retail, food services, and hospitality. By comparison, Bennington County's wages grew by just 12 percent between 2012 and 2017.

4. *Major Measurements: Employment*

   The number of jobs in Bennington County declined between 2017 and 2022, to 16,371. This 4.3 percent reduction exceeded the state's decline of 2.6 percent. Nearly all major employment sectors in Bennington County reduced headcounts, with leisure, hospitality, state government, and retail among the hardest hit. Real estate, education, non-durable goods manufacturing, and health care saw important gains, however.

Table 7-1 details the region's employment levels and earnings by broad economic sector. Among the five largest industries – health care, retail, education,

leisure/hospitality, and manufacturing – health care and education posted noteworthy headcount gains, but retail and manufacturing suffered significant losses for the second decade in a row. However, the table presents an interesting picture: this economy is rebalancing. Double-digit losses in retail, manufacturing, information, and agriculture are partially offset by double-digit gains in education, construction, and wholesale trade/transportation/utilities. By contrast, in the previous regional plan, which looked back from 2012 to 2002, the professional services sector was the only one to grow.

Table 7-1: Bennington County Economic Sector shifts, 2012-2022, and Average Wages. Source: Vermont Department of Labor.

Economic Sector	Employment 2012	Employment 2022 (% change)	% total	Average Wage 2022
Health and Social Services	3,043	3,237 (+6.0)	19.8	$59,938
Retail Trade	2,922	2,423 (-17.1)	14.8	$42,508
Manufacturing	2,617	2,077 (-20.6)	12.7	$55,933
Leisure, Hospitality, Recreation	2,165	2,091 (-3.4)	12.8	$30,665
Education	2,047	2,330 (+13.8)	14.2	$46,573
Professional Services	1,330	1,338 (+0.6)	8.2	$95,238
Government *	649	677 (+4.3)	4.1	$63,171
Construction	572	629 (+10.0)	3.8	$51,361
Finance, Insurance, Real Estate	520	487 (-6.3)	3.0	$90,748
Other Services	428	391 (-8.6)	2.4	$30,339
Information	329	242 (-26.4)	1.5	$74,218
Transportation/Wholesale Trade/Utilities	318	368 (+15.7)	2.2	$78,594
Agriculture, Forestry, Mining	92	81 (-12.0)	0.5	$35,849
Total	**17,031**	**16,371 (-4.3)**		**$54,583**

***** Governmental employment exclusive of local and state education and health service jobs, which have been included in their respective economic sectors.

One result of this rebalancing is a slightly more diversified economy. Although the largest sector – health care and social services – increased its share to nearly 20 percent of all jobs in the region, there is growing parity between industries. Although specialization allows for a sector to make an outsize contribution to regional economies, it can expose a region's economy to major hardship in the event of an industry-wide downturn. The Covid-19 pandemic, for instance, was especially hard on retail and manufacturing economies around the country. But in its aftermath, most everyone in Vermont observed that the building trades were busier than ever. The variation in Table 7-1 suggests that people who left one industry were able to find work in another part of

the economy.

Table 7-2 examines the presence of employment in the region's towns. Bennington and Manchester are the two major employment centers, accounting for 56.2 and 22.3 percent of the region's jobs, respectively. Another 11.7 jobs are in either Arlington or Dorset, and both towns reported noteworthy job increases between 2012 and 2022. The remaining ten percent of jobs in the region are distributed among the nine incorporated towns.

Table 7-2. Total jobs, average wages, and share of jobs in BCRC towns, with comparisons to 2012. Source: Vermont Department of Labor.

Town	Total Jobs	% Change, Jobs	Average Wage	% Change, Wages	Town Share of Regional Jobs
Arlington	1,117	+29.9	$57,851	+33.0	7.0
Bennington*	9,028	-8.6	$51,640	+37.6	56.2
Dorset	757	+13.7	$62,423	+64.2	4.7
Glastenbury	NA	NA	NA	NA	NA
Landgrove	37	-2.6	$47,284	+34.9	0.2
Manchester	3,577	-12.6	$55,734	+52.4	22.3
Peru	219	+5.8	$52,416	+112.6	1.4
Pownal	145	-18.1	$48,485	+79.1	0.9
Rupert	64	+18.5	$51,128	+28.5	0.4
Sandgate	18	NA	$70,350	NA	0.1
Shaftsbury	453	-7.4	$59,042	+46.4	2.8
Stamford	67	+1.5	$41,896	+54.4	0.4
Sunderland*	569	+620.3	$74,934	+74.5	3.5
Woodford	14	+7.7	$73,191	+129.1	0.1
Total	**16,065**	**-3.5%**	**NA**	**NA**	**100.0**

* VDOL now classifies public sector educators by their Supervisory Union offices instead of school location. As home to the Bennington-Rutland Supervisory Union, Sunderland therefore gained 311 "new" local government positions in education since 2012. Bennington, home to the Southwestern Vermont Supervisory Union, added 160 of the same. All other towns with schools, therefore, saw declines in this sector.

There is significant variation in the region with respect to wages, from a low of $41,900 in Stamford to nearly $75,000 in Sunderland. (Sunderland, as Table 7-2 shows, is a statistical outlier for job totals due to the new method for counting public school employees by supervisory union headquarters instead of by school.) Although wages

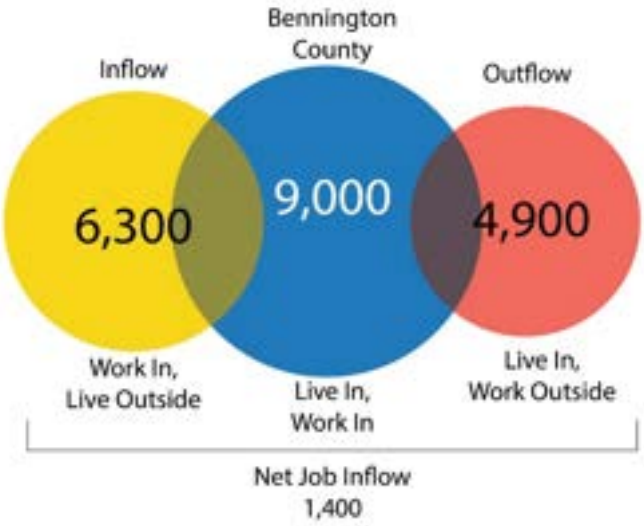
are up across the board, compensation levels grew by extraordinary levels in many of our smaller towns, and more than doubled in Peru and Woodford.

In previous regional plans, this likely would have been celebrated as an important indicator of increased economic opportunity. In the post-pandemic world, however, this is primarily an indication of the proliferation of remote work. Remote workers are now considered employed in the town of their residence, and not in the town of their "former" office building. Full-time remote positions tend to be in the realm of professional and business services, which enjoy higher wages than most. Furthermore, a remote worker is considered a "new establishment" in the town, as well, which can add to the confusion. Whether the remote worker is new to town or is a longtime resident who is now taking advantage of remote work options with a local employer, the result is the same: smaller towns that have long offered no more than a few on-site employment opportunities are seeing figures around jobs, wages, and establishments that don't quite match what most would call the "local economy." It is too soon to say whether the implication is that this metric is no longer helpful, or if future iterations of the data will find a way to differentiate between remote work and on-site work. What may be inferred, however, is the importance of local broadband availability to local and non-local employers and to the residential real estate market.

Remote positions aside, the geographic distribution of work within the region – approximately 3,600 jobs in Manchester, 1,100 in Arlington, and 9,000 in Bennington – means that nearly all of the region's residents are within a 20-minute drive of one of its three employment centers. This has helped keep the commute time for most Bennington County residents manageable, with an average travel time of about 19 minutes each way in 2022, 2017, and 2012. The only significant shift in commuting patterns in that time, predictably, has been the greater share of residents working from home: holding at about 8 percent in 2012 and 2017, the figure rose to over 14 percent in 2022. Office-based employers expect this to be the new normal instead of a blip, as more commercial office real estate is now on the market than in previous years.

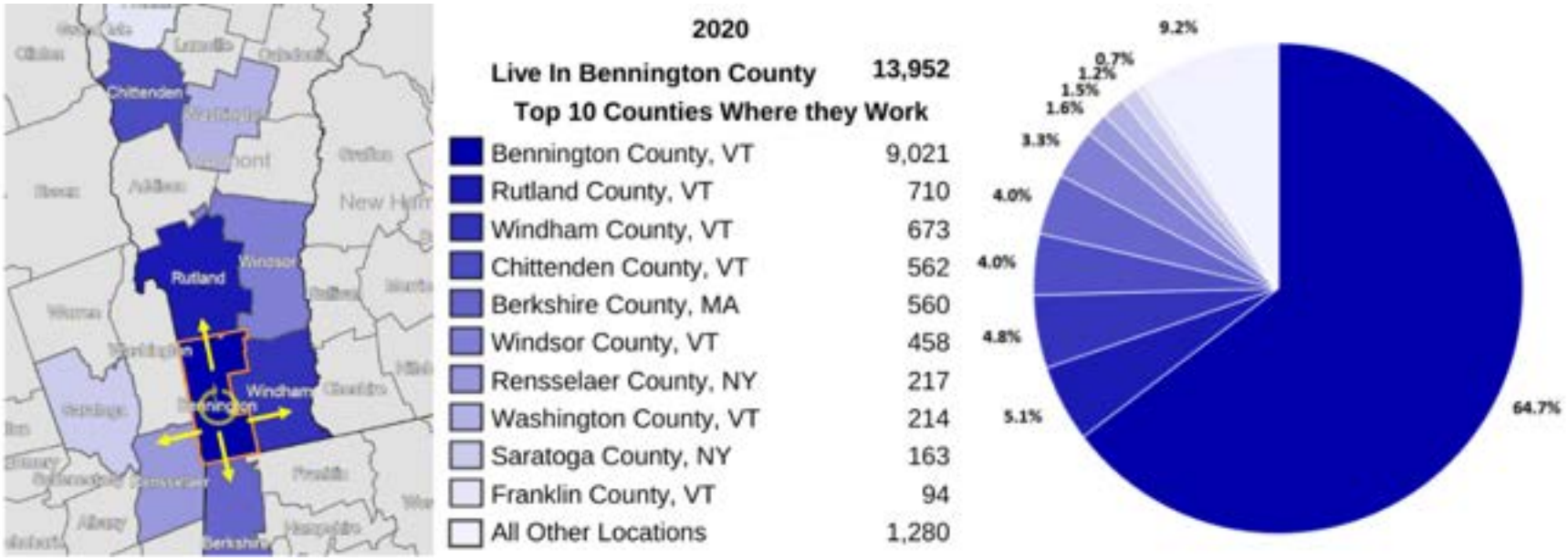
Although the region is not served by a major interstate or commuter rail route, its economy is tied to its neighbors. The Northshire is within commuting distance of Rutland and its surroundings, as well as Washington County, New York. The Southshire is adjacent to the job markets of the Capital District in New York, as well as the northern half of Berkshire County. Figure 7-1 details the inflow and outflow of people to and from Bennington County for work in 2020. Of the 15,313 jobs in the county, about 9,000 were held by residents. The other 4,900 working residents left the region for work each day, leaving regional employers to rely on approximately 6,300 people to travel into the region.

Figure 7-1. Workers in Bennington County. Resident workers and inflow and outflow of workers. *Source: US Census Longitudinal Employer Household Dynamics.*



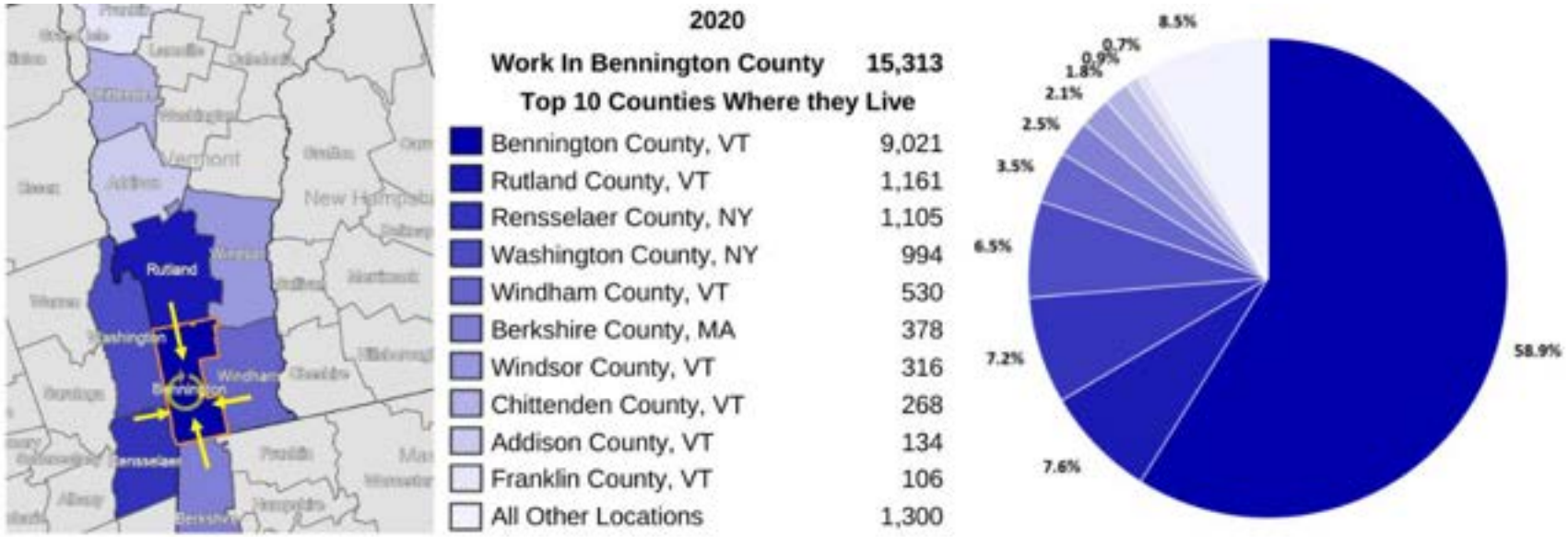
Figures 7-2 and 7-3 provide more details for these two groups. Regional employers rely on residents for about 60 percent of available jobs but rely on residents of Rutland, Rensselaer, and Washington (NY) counties for over 20 percent of the region's jobs. Of interest is the relatively limited presence of workers from Windham and Berkshire (MA) counties, which contribute about 6 percent of the region's employment. Conversely, nearly two-thirds of the region's working residents stay within the county for work. Between four and five percent of the region's workers travel to Rutland, Windham, Chittenden, and Berkshire County for work. Remarkably, the presence of New York-based workers in Bennington County far exceeds the number of Bennington County-based workers in New York. This uneven exchange is the prime driver for the region's net job inflow of 1,361 workers.

Figure 7-2. Where Bennington County Residents Work. *Source: US Census Longitudinal Employer Household Dynamics Program, OnTheMap*



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Figure 7-3. Where Bennington County Workers Live. *Source: US Census Longitudinal Employer Household Dynamics Program, OnTheMap.*



7.2 Industry Mix

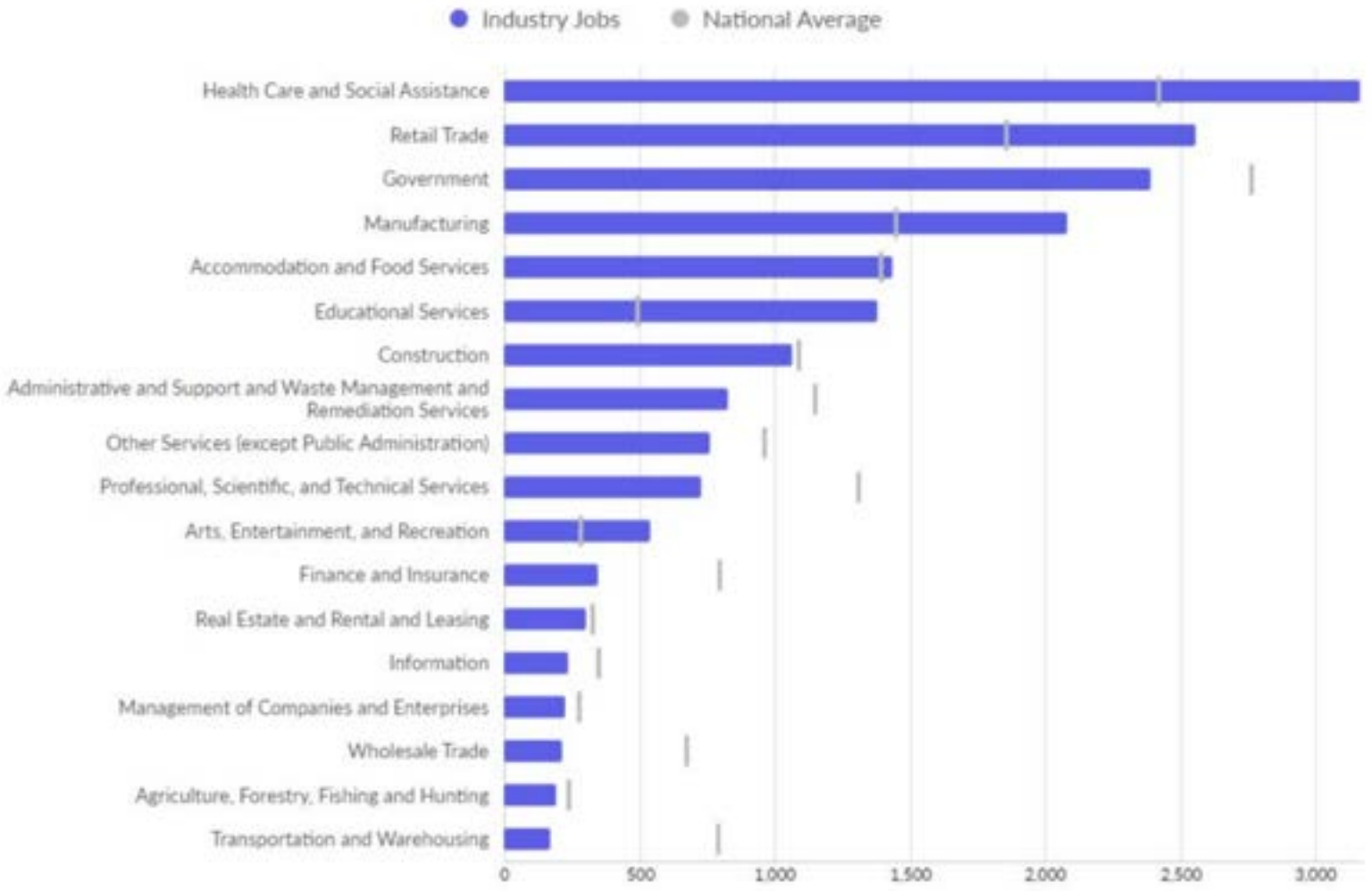
Elaborating on the previous section, Table 7-4 orders the region's economic sectors by workforce size and includes benchmarks for the region's employment headcount relative to the national average. Three of the four largest sectors make up a larger share than the national levels, providing opportunities for the healthcare, retail trade, and manufacturing industries to take advantage of economies of scale. One interesting data point: the region's goods-producing industries – composed of natural resources/mining, construction, and manufacturing sectors – have a significant role to play in the economy. Manufacturing's presence is well above the national average, but the construction and natural resource sectors are close to national averages. By contrast, there is far more variation among the service-providing industries, and most of our smaller industries are well below national averages. While we do not expect the economy of a small, rural county to reflect national composition, it is important to encourage growth outside of the more well-established health care, retail, hospitality, and education sectors, and into more underrepresented and lucrative industries like finance, professional/technical services, and information.

Service-Providing Sector Spotlight: Health Care and Social Assistance

For more than a decade, the health care industry has been the largest source of jobs in Bennington County. Its growth has been anchored by Southwestern Vermont Health Care (SVHC), the region's largest employer. Its main campus, Southwestern Vermont Medical Center, is surrounded by a cluster of additional medical offices and specialists just outside downtown Bennington. SVMC maintains campuses in Manchester and Pownal, as well, and residents also utilize the East Dorset Medical Campus of Rutland Regional Medical Center and the Battenkill Valley Health Center in Arlington. Battenkill Valley is a federally qualified health center (FQHC), thereby receiving enhanced reimbursement from Medicare and Medicaid. Community-based mental health and social services are provided by the federally qualified United Counseling Service (UCS) with multiple offices in Bennington, and an office in Manchester serving the Northshire. The Manchester Medical Center provides urgent care and primary care in Manchester. Many traditional and alternative therapy private practices throughout the region contribute to this sector.

Positions in this sector offer good salaries across many occupations and are essential to providing necessary services to ensure community health. Accordingly, many educational programs exist locally for career advancement: the Community College of Vermont, Southwest Tech, and the now-consolidated Vermont Tech and Castleton University all maintain in-person programs for individuals to enter medical professions, secure certificates, and earn academic degrees to advance in a variety of medical fields.

Figure 7-4. Largest Industries in Bennington County. *Source: EMSI, Economy Overview. 2022.*



Despite these offerings, shortages of primary care and mental health professionals persist. SVHC benefits from its affiliation with Dartmouth Health and maintains educational pipeline programs with the educational institutions above, but the regional demand for services continues to outstrip supply. Reliance on visiting nurses and other temporary or rotational workers is an essential tool for bridging some of these gaps but does not ultimately retain the full economic value of the individual as an employee or a resident. Ensuring that the appropriate elements are in place to retain recruited workers is an essential part of this sector's sustainability, across all levels and occupations within the industry.

Service-Providing Sector Spotlight: Retail Trade

The second-largest sector in the region, retail stores are throughout the region and primarily found in downtown Bennington and Manchester. They are central to the image and character of village centers and business districts and provide residents and visitors alike with important connections to our communities. Bennington County had the fourth-highest retail sales total in Vermont in 2023, behind only Chittenden, Rutland, and Washington counties, with receipts totaling nearly $378 million. This is primarily driven by Bennington ($191 million) and Manchester ($129 million), with Manchester serving as an especially outsized engine for retail given the community's smaller resident population.

Although retail was up slightly statewide in 2023 compared to the previous year, Manchester's 2023 activity was down approximately 13 percent: one of the largest declines for a market of that size in the state. Whether this is a one-time adjustment related to pandemic-era elevations in the presence of second-home owners or a reflection of broader brick-and-mortar trends is unclear. Bennington, by contrast, is home to several large department, home supply, and chain outlet stores that were better protected from the impacts felt by Manchester's retail collection. The presence of these larger corporate entities can come at a cost to downtown retail, however, and they do little to contribute to a distinct sense of place.

By contrast, long-established general stores, such as H.N Williams Store in Dorset and the Wayside Country Store in Arlington, have been joined by an encouraging crop of recent additions or re-additions in the form of the Shaftsbury Country Store, Bonnie & Clyde's in East Arlington, the Bennington Community Market, and the Hill Top Farm Store in Pownal. These entities, and others like them including Winchester's Store and Village Market & Video in Pownal, Henry's Market in Bennington, Sherman's Store in West Rupert, the Dorset Union Store, Bromley Market and J.J. Hapgood Store in Peru, and Powers Market in North Bennington, provide locals and visitors with outlets for social activity, retail shopping, and local food options. The health and well-being of these businesses is of major importance to the communities they serve and is especially important to the local vendors in the agricultural industry

whose jams, honeys, meats, cheeses, produce, dairy, ice cream, and other offerings can be found on the shelves.

Goods-Producing Sector Spotlight: Manufacturing

The Bennington region has a long history as a manufacturing center, and its first chapters are tied to the region's hydropower assets. The earliest manufacturers provided lumber, grain, and other staples required by the first residents and businesses of the area. Some of the historic structures from the latter half of the American Industrial Revolution still house manufacturing businesses, such as the National Hanger Company and Mack Molding's East Arlington Plant, while others have been converted to mixed use centers, such as the Holden Leonard Mill in Bennington, Factory Point in Manchester, and the Sage Street Mill in North Bennington. Unsurprisingly, much of the region's recent manufacturing growth has taken place in newer industrial parks or locations specifically planned to support this type of business: Mack Molding's main production plant in Arlington, Vishay Tansitor, NSK Steering Systems, and Kaman Composites in Bennington, EPS Pad Print in East Dorset, and Orvis and Natural Form in Manchester, among many others.

The region's largest manufacturing businesses are found in Arlington, Bennington, and Manchester. Bennington's manufacturers are principally found in the Maneely Business Park, Bowen Road Industrial Park, and the Morse Industrial Park. Mack Molding occupies two sites in Arlington as previously described, one a new facility and the other a historic factory building in the center of town. Other manufacturing sites exist along Warm Brook in East Arlington near the US-7 interchange. Most manufacturing in the Northshire occurs in planned industrial parks along Richville Road, north of downtown Manchester near the town office complex, and in East Dorset.

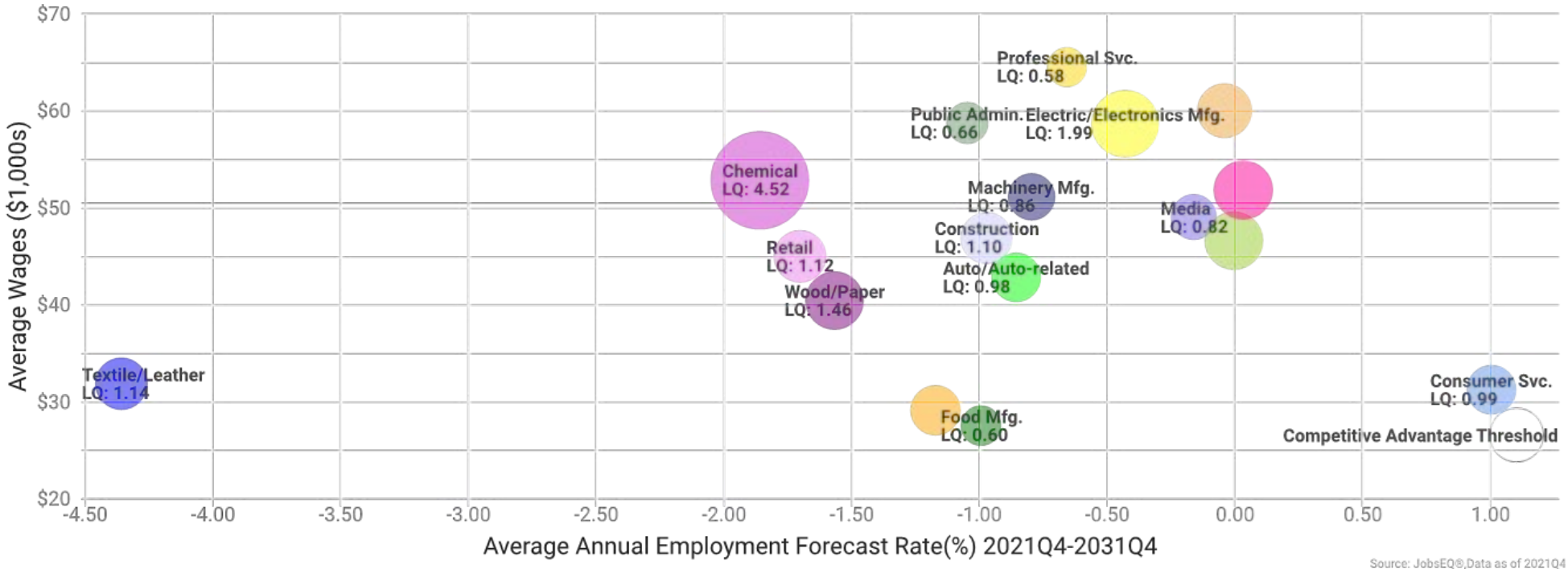
Firms in the region produce parts for the automobile industry (NSK), specialized plastics (Mack Molding, K&E Plastics, Quadra-Tek, National Hanger, and T&M Enterprises), carbon composite components (Kaman Composites, Star Wind Turbines), and other materials that require advanced technological equipment and processes (Vishay Tansitor, Abacus Automation, Orvis, and Engineered Printing Services). Other businesses create high quality products from natural resources, such as J.K. Adams in Dorset, Bennington Potters, Wilcox Ice Cream in Sunderland, Vermont Container in Bennington, and Maplebrook Cheese in North Bennington. Of course, small manufacturers, many of which are in the supply chain for some of the larger local businesses, are critical parts of the region's manufacturing base as well. These operate in a number of niche industries, including metalwork and lighting (Authentic Designs, Sterling Gun Drills), electrical engineering (Tempurtech), outdoor recreation (Dion Snowshoes), and textiles (Porta-Brace).

In the past decade, plant closures at Plasan North America, Plasan Carbon Composites, TE Connectivity, and, most recently, Energizer – all in Bennington – have

made it difficult for families to feel confident encouraging children and grandchildren to enter an industry that is one of the higher-paying sectors in the economy. But in assessing these closures, they all have one thing in common: corporate ownership outside of Vermont. By contrast, locally controlled manufacturing enterprises, such as Mack, K&E, National Hanger, Abacus, Maplebrook, Porta-Brace, Orvis, J.K. Adams, and Wilcox Ice Cream have continued to thrive. These employers benefit from deep ties to their communities and direct connections to their workforces. Assisting these keystone employers with transition and recruitment strategies to ensure their continued success in the face of an aging workforce is an essential task.

Figure 7-5 provides a more dynamic assessment of the region's manufacturing specialties, combining three data points: industry size relative to national averages; industry wages; and the forecasted annual employment growth of each industry between 2021 and 2031. Helping industries with lower forecasted growth, as well as industries with a brighter outlook, is vital for ensuring the mix of manufacturing enterprises that can open a door for a broader mix of potential employees.

Figure 7-5. Industry Clusters for Bennington County, Vermont, as of 2021 Q4. *Source: JobsEQ Data, 2021Q4*



7.3 Workforce

Bennington County's population is getting older, which means that its workforce is getting older, too. In fact, as Figure 7-6 shows, the nearly 14,200 individuals in the region over the age of 55 in 2022 includes many workers who are retiring soon, with only 5,300 Millennials in the region to offset the upcoming retirements. These data in Figure 7-6 also indicate the relative lower portion of millennials, the higher portion of those 55 and older, and the very low racial diversity of the Bennington County population relative to the total US population.

Figure 7-6. Bennington County Population Characteristics. *Source: EMSI Economy Overview, 2022.*



But this isn't the only workforce issue the region is facing. As illustrated in Figure 7-7, according to 2022 estimates, of the 29,256 regional residents able to work, some 13,600 were not in the labor force. Some of these individuals are high school or college students or retired senior citizens unavailable to work. But given the extreme labor shortage faced by employers around Vermont in general and in the Bennington region in particular, there are likely many hundreds, if not thousands, of potential employees living in the region who are not in the labor force for one reason or another.

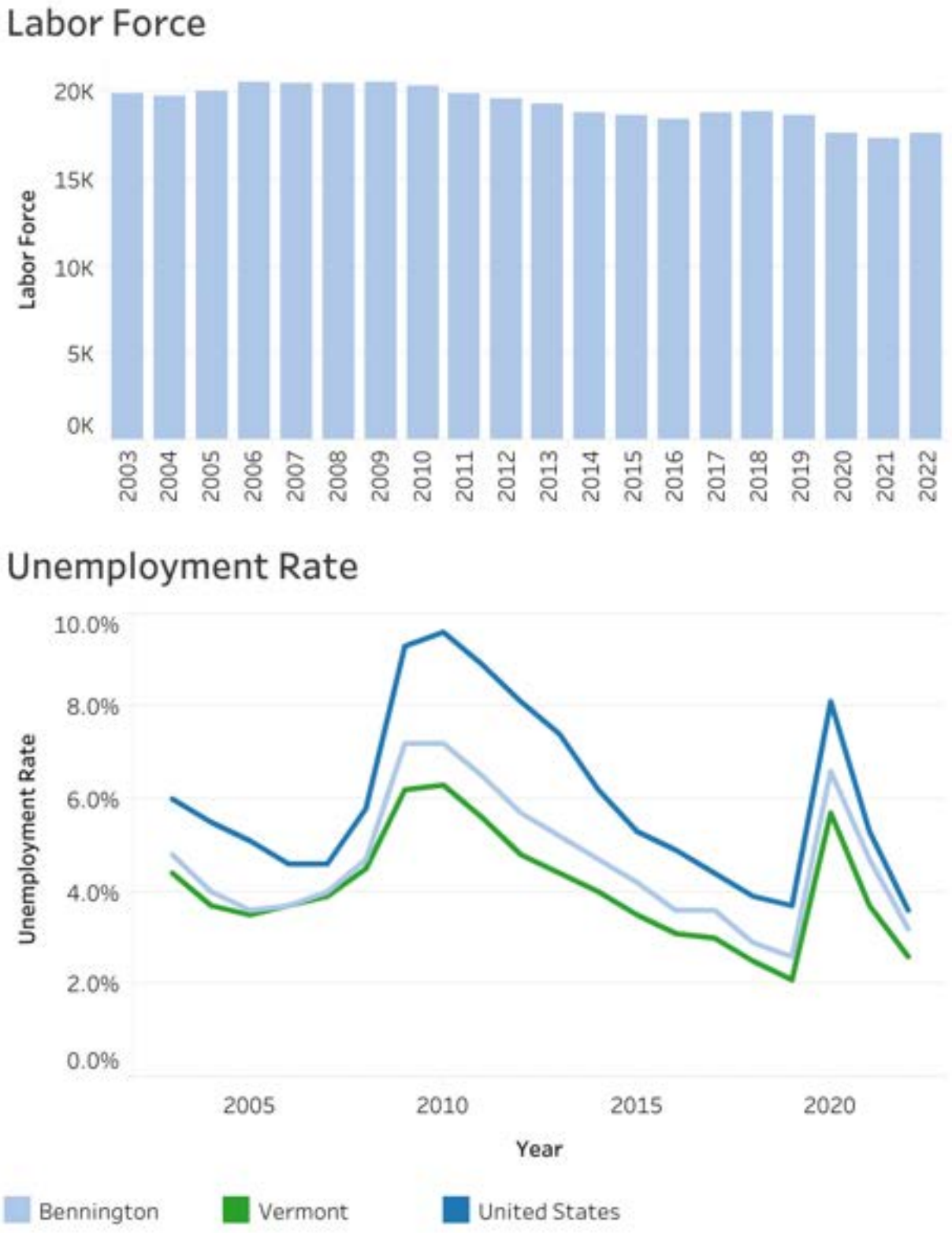
Figure 7-7. Bennington County Labor Force Breakdown. *Source: EMSI Economy Overview, 2022.*



Figure 7-8 details how unemployment and the size of the available workforce has changed over two decades. The number of unemployed people in Bennington County in 2022 – 564 people – is nearly one-third of the 2009 high of 1,475 during the Great Recession. The 3.2 percent unemployment rate in 2022 is less than half of the 7.2 percent of 2009 and 2010. It is good news that people who are looking to work are finding it, as the most commonly used measurement of unemployment includes only those who are unemployed and have been looking for work sometime in the previous four weeks. However, the labor force has been steadily declining as the population stagnates and the share of adults over 65 increases.

In addition to needing more people to engage with regional employment opportunities, workforce development professionals are also working overtime to ensure that incumbent and upcoming workers are prepared for the careers of today and tomorrow. To that end, BCRC's Workforce and Education Committee, which draws on collaborative membership from the Vermont Department of Labor, Southwestern Vermont Supervisory Union, Southwest Vermont Career and Technical Education Center, CCV, Bennington-Rutland Supervisory Union, and other educational and service providers, continues to promote career readiness, career transition, and workplace skill-building for residents of all ages. Working with successful partners elsewhere in the state and generating excitement and enthusiasm for the region's career opportunities, is an essential part of ensuring that our workforce continues to be the difference-maker than many employers say that it is.

Figure 7-8. Bennington County Unemployment and Labor Force Data. *Source: Vermont Department of Labor, Local Area Unemployment Statistics (LAUS), count of workers by place of residence. Vintage 2022, released 3/13/2023.*



7.4 Economic Development Policies and Actions

1. In concert with regional partners, deploy the Southern Vermont Comprehensive Economic Development Strategy, first completed in 2019 and updated in 2024. Position the CEDS publicly as a vital tool, articulating and detailing actionable pathways to strengthen businesses and support the people who contribute to them.
2. Continuing to act regionally, secure Economic Development District from the US Economic Development Administration to bring annual federal funding for economic development activities to Southern Vermont. Ensure that clear plans are in place to guide the highest and best use of the resource.
3. Support the reuse and redevelopment of existing physical/structural assets wherever possible. Engage with existing employers to support their expansion, and local entrepreneurs who wish to enter the marketplace.
4. Capitalize on pandemic-related exposure to expand the possibilities for regional economic development. Identify and work with external site selection firms that can promote existing sites to a broader client base with ready access to capital.
5. Collaborate with workforce development partners and experts to increase labor force participation rates among the region's discouraged and disconnected workers. Research innovative practices from around the country with potential applicability.
6. While workforce and population demands remain, work with regional partners and employers to identify potential and develop reliable hubs for relocation in the Northeast.
7. Prioritize the utilization of existing developable space in the region's many business parks. Engage with property managers to ensure offerings are adequately marketed.
8. Maintain and enhance the variety and versatility of the existing regional economy. Foster the positive and supportive milieu that exists between and across sectors.
9. Utilize BCRC's roles in the public and private sectors to build strong relationships between local employers and municipal officials. Provide opportunities for parties to engage and discuss topics of mutual interest and, where appropriate, opportunities for mutual investment.
10. Work closely with municipalities to advocate for the development of local economic development strategies, and for the continual implementation of

existing strategies.

11. Continue to foster economic development cooperation throughout the Shires. Ensure that regional economic development conversations benefit from regional representation.
12. Make effective use of the region’s abundant natural resources as a base for economic development activities.
13. Continue building on the workforce development programs, including signature events, that bring together service providers and users working to meet the needs of area residents.

Landscape of the Shires

8 LAND USE

8.1 Regional Landscape

The landscape of the Bennington region is predominantly rural in character with relatively compact centers of development lying among rural and agricultural valleys. The forested slopes of the Green and Taconic Mountain Ranges provide a natural backdrop to these valleys, creating a diverse landscape of open and forested lands (Map 8-1). One of the central objectives of both Vermont state land use policy and this regional plan is to reinforce this development pattern, directing most new growth into discretely bounded urban centers and villages while preserving the open rural lands between those centers. The regional land use plan was developed in concert with local land use plans and regulations. It is intended to provide a clear framework for regional growth and redevelopment while ensuring that municipal land use plans are consistent with its overall policy and compatible with one another.

Maintaining clear demarcation between centers of compact development and the surrounding rural landscape is a particularly important, and challenging, component of this land use strategy. If development sprawls outward from the Bennington and Manchester “urban centers” and the mixed-use villages that form the heart of many of the region’s towns, the intervening open lands will be compromised and the area will have lost much of its unique character. If sprawl were to become pervasive, it would draw vitality from downtowns, urban neighborhoods, and villages, making it more difficult for those critical community centers to thrive and, in turn, attract additional desirable development. A dispersed development pattern also reduces the ability of towns to provide efficient and economical services and leads to unnecessary and excessive energy use. All of the land use policies and strategies discussed in this chapter, therefore, should be considered in light of the central goal of encouraging new mixed-use development in compact village and town centers and protecting the natural and scenic quality of the rural landscape.

The regional land use plan is organized around four main land use districts: Urban Centers, Villages, Rural Areas, and Upland Forests. Characteristics, opportunities, and limitations specific to each district, and policies to guide various types of development activity are presented in the following sections of this chapter. This plan also includes guidelines related to special land use planning areas, including historic districts and sites, shopping centers, and other areas. Tools and techniques for land use regulation, including open space design, form-based codes, performance standards, and other ideas are presented throughout the chapter.

8.2 Urban Centers

The region's two urban centers include the downtown areas in Bennington and Manchester, as well as the surrounding relatively densely developed mixed-use areas and residential neighborhoods (see Map 8-2). These Southshire and Northshire urban centers share many common characteristics. Both areas are served by public water supply and wastewater disposal systems, allowing for greater concentrations of residential and commercial/industrial development than is possible in most other parts of the region. Businesses in both centers provide employment and a broad range of goods and services to people in multiple surrounding towns. As regional population centers and shire towns, both Bennington and Manchester are home to relatively large local governments and important cultural and institutional sites and activities.

The Bennington urban center surrounds its designated downtown and covers essentially the same area as its state designated growth center. Manchester's urban center is located around its designated village center and neighborhood development area (NDA). These state designations provide regulatory, financial, and other incentives to encourage compatible development within their boundaries. The regional urban center boundaries (Map 8-2) were established by delineating the areas surrounding the state designated areas that are fully served by municipal water and sewer infrastructure, a roadway network that includes pedestrian facilities which promote walking, and a mix of residential, commercial, industrial, and institutional uses, as well as public open spaces. Both urban centers also include regulated historic and design review districts.

While sharing many physical characteristics and functions, the two urban centers also differ in many ways. Bennington has a much larger year-round population than Manchester. Both communities have diverse local economies, but Manchester's historic association with tourism has resulted in a larger number of stores, lodging facilities, and restaurants that cater to people who travel to the area from outside the region. Bennington, on the other hand, includes a higher proportion of businesses that principally serve the population of southwestern Vermont and nearby communities in New York and Massachusetts. This distinction is most apparent along the highway corridors outside the downtowns, where commercial development in Manchester consists mostly of restaurants and motels and some professional offices. In Bennington (especially along Northside Drive), those highways include shopping plazas with department and grocery stores, furniture stores, automobile parts and service businesses, restaurants, and other uses that provide convenient goods and services for residents. These distinctions may become less pronounced as the Northshire and Southshire work together to jointly market the region's economy and expand tourism, while Manchester focuses its economic development efforts on strengthening local businesses and markets.

A number of tools are available to Manchester and Bennington to help encourage

compact mixed use development in their urban centers; among them regulatory incentives, public investments, infrastructure improvements, downtown organizations (such as the Better Bennington Corporation and the Manchester Business Association), support for historic preservation, and governmental assistance for private initiatives that further local development priorities. These tools should be used to ensure that the urban centers contain a variety of commercial, professional, residential, industrial, and public uses that contribute to a diverse and stable economic base for the towns and surrounding communities. In fact, the Putnam Block redevelopment in Bennington and the Factory Point Place redevelopment in Manchester exemplify the use of many of these tools to realize the goals of pedestrian-oriented, mixed-use development in the two urban cores. A mix of uses that supports a human-scale and pedestrian environment is appropriate for these areas and can be encouraged with flexible zoning that also permits compact development patterns with residential densities ranging from five to twenty units or more per acre, based on neighborhood character, local regulations, and infrastructure capacity.

Form-Based Land Use Regulations

Form-based zoning was developed to overcome the problems of sprawl created by use-based codes. Form-based code regulates land development with an emphasis on controlling the form of development with less focus on controlling land uses. Features regulated under form-based codes, such as "SmartCode," include lot dimensions, size of blocks, building setbacks, building masses, height, and placement on lots, and location of parking, pedestrian facilities, landscaping, and other developed features on a site.

Form-based regulations may serve as unified land development codes that can include zoning, subdivision regulations, streetscape, sign, landscaping, and basic architectural standards.

One of the basic principles of form-based codes is that towns should be structured as a series of walkable neighborhoods. Such neighborhoods require a mix of land uses (residential, office, and retail), public spaces, and pedestrian-oriented transportation design.

The zones within a form-based regulatory scheme are designed to create complete human habitats ranging from the very rural to the very urban. Where conventional zoning categories are based on different land uses, form-based zoning categories are based on their rural-to-urban character. All categories within a form-based code allow some mix of uses. These zoning categories ensure that a community offers a full diversity of building types, thoroughfare types, and civic space types, and that each has characteristics appropriate for its location.

Each municipality should be innovative in its efforts to ensure the full use and appreciation of these urban centers. Any such effort should consider the historic character and unique physical design of the downtowns and surrounding areas. Design review regulations can help ensure the continued appeal and vitality of these key

community assets. Towns and villages may also consider the use of innovative tools such as “form-based code” to protect historic and pedestrian-oriented character of the built environment (see box above). Another way to protect historic integrity while promoting new growth is through the adaptive reuse of buildings, often in developments that combine a range of commercial uses with upper floor residences. A significant residential population in the urban centers is critical to their vibrancy and long-term success, so a range of quality housing options in new, historic, and mixed-use buildings should be an important part of local land use planning. The natural resources that fostered the growth of these urban centers are also important to their future. Therefore, waterways and other natural features should be protected and integrated with the urban design to increase the attractiveness of the areas and to provide opportunities for outdoor activities.

Shopping Center Definitions

A shopping center may include one or multiple stores, in single or multiple ownership, functioning together as one integrated complex. For the purposes of the Regional Plan, the following definitions apply:

Convenience Shopping Center: A shopping center with a store or stores that sell daily living needs and convenience goods such as food, medicine, clothing, and hardware, and may also include service businesses (e.g., laundry, hair salon, bank, auto or bicycle shops). These centers range in size from 10,000 to 30,000 square feet of gross leasable floor area.

Community Shopping Center: A shopping center with a store or stores that sell a broad range of goods (such as food, clothing, furniture, appliances, sporting goods) and which also may include personal and professional service establishments. Large grocery stores, department stores, and movie theaters are often found in these centers. Gross leasable floor area in a community shopping center may range from 30,001 to 300,000 square feet.

Regional Shopping Center: A shopping center (or “shopping mall”) including stores that sell a wide variety of merchandise and services—similar to but larger and more extensive than a community shopping center—usually built around one or more large anchor department stores. These centers exceed 300,000 square feet in gross leasable floor area.

Shopping Centers

Shopping centers (see box above) represent a form of commercial development that grew in prevalence in and around urban centers in the 20th century. Different types and sizes of shopping centers are appropriate in different local planning areas. In urban centers, any of the shopping center types—convenience shopping centers, community shopping centers, and regional shopping centers—are acceptable provided they are designed in accordance with the guidelines for commercial development included in this plan and the requirements of local land use plans and regulations. The specific location of a new shopping center within an urban center is particularly important since significant increases in traffic flow can be expected, potentially spawning additional commercial development in the area and changing the character of adjacent neighborhoods. A new large shopping center, or cluster of shopping centers, developed

distant from established business centers can damage the vibrancy of existing commercial businesses. Consequently, shopping center development should be used to reinvigorate existing commercial areas rather than to create new ones.

Shopping centers initially were developed to be primarily accessible by auto, with the resulting development patterns emphasizing parking lots and vehicles over community character and people. To produce a more desirable physical environment, new and redeveloped shopping centers should include design elements such as those contained in the Town of Bennington's design guidelines for projects located within the town's "planned commercial district" and the Town of Manchester's design guidelines for its commercial and historic districts. Those standards include placement of buildings closer to the road with parking areas to the side and rear of the lot, attractive building design, landscaping, application of access management principles, and provisions of pedestrian facilities accessing the center and within the center.

Community and regional shopping centers often contain large "big box" retail spaces, with single tenants that may occupy 50,000 to 200,000 square feet, or more, of floor space. Although these large retailers provide jobs and offer consumers a variety of often low-priced goods, concerns persist about the relatively low-wage and low-benefit nature of most of these "big-box" retail jobs as well as the impacts of these large retailers on smaller and locally owned businesses in the community. The potential impacts of such developments should be considered carefully, therefore, and should be permitted only if they include exemplary building and site design and are determined to have a net beneficial impact based on an independent economic and community impact study that may be requested by the town or the BCRC.

8.3 Villages

The region's villages are historic centers of community life that are key to properly focusing growth and development outside of urban centers. Villages provide rural communities with a unique sense of place and contribute to the historic and scenic quality of the entire region. While differing in size and extent, villages generally include compact centers with residential densities higher than the surrounding countryside, some commercial development, and important community facilities such as town halls, churches, schools, and post offices. A small network of public roads is generally present and some, but not all, villages are served by a public water supply system and, less commonly, by a public sewer system.

Vermont has developed a system for designating important village centers that form the historic cores of its rural communities. This designation affords designated village centers with significant benefits in terms of historic preservation funding, enhanced opportunities for grants and tax credits, and other community development benefits and financial incentives. Village centers have been designated in Arlington, Dorset, Manchester, North Bennington, Peru, Pownal, Rupert, Shaftsbury, Stamford

and Sunderland. The BCRC will assist other municipalities to pursue formal village center designations as requested.

This plan identifies village land use districts in towns throughout the region (see Map 8-2). A town may or may not have the regional village land use district within it, and some towns have more than one. Factors in determining the presence and boundaries of the village district include: a state-designated village center, local road network and availability of public utility infrastructure, relatively dense development and smaller lot sizes, a mix of land uses, and a distinct separation from surrounding rural areas.

Villages and the areas immediately surrounding them are suitable locations for relatively dense development. New development in these areas reinforces historical settlement patterns, is economically efficient, and reduces the amount of scattered growth that can lead to undesirable levels of sprawl in the countryside and inefficient provisions of municipal services. A variety of residential, commercial, industrial, public, and institutional land uses are appropriate in villages, but at a smaller scale than in the region's urban centers. Residential densities may vary from one to six or more units per acre, depending on the character of the neighborhood and the availability of public infrastructure to support the denser use. In villages, additional development can be accommodated by allowing mixed uses (e.g., commercial with upper floor residential) without requiring additional land area for the new uses, based on local land use regulations and environmental restrictions. Convenience shopping centers, designed to complement the historic character and support community vibrancy, are appropriate in villages. However, community and regional shopping centers as defined in this plan are not appropriate in villages.

Communities are faced with several challenges when planning for and promoting compact mixed-use development in villages. Frequently, the most difficult barrier to overcome is the lack of a public wastewater disposal system, and in some cases, limited availability of a public water supply system. The BCRC and its member municipalities should assess existing conditions, future service areas, alternative designs, and funding sources for new or expanded water and sewer systems to support desired growth in village areas. Furthermore, identification of corridors for new roads or road segments in and around planned village areas as part of a local planning process, and support for construction of those roads and utility infrastructure, can help drive growth in a way that supports compact center development.

Municipalities in the region may expand the geographic extent of existing village areas, and may even establish new village centers, provided careful local planning is completed prior to adopting any changes to the municipal plan or land use regulations. In general, priority should be given to expanding existing and historic village centers or rural hamlets rather than establishing entirely new villages in rural areas. Planning for new or expanded villages should consider factors such as proximity to existing

neighborhoods, the adequacy of public roads, soil conditions, and the availability of public water and sewer infrastructure. Local land use regulations for existing and planned village areas should be structured to encourage mixed-use development while protecting the character of the community through carefully adopted provisions for site plan review, performance standards, and when appropriate, historic preservation and design control standards.

8.4 Historic Districts and Properties

Preserving the region's historic, archeological, and cultural resources is an important prerogative for the Bennington region. The region's urban centers, villages, and hamlets contain numerous historic structures that reflect the rich history and architectural heritage of its communities. Several historic village centers – Dorset, Manchester Village, Old Bennington, Bennington, North Bennington, and Arlington – have achieved special recognition by being placed on the National Register of Historic Places. In addition, many historically significant structures and sites are found throughout the rural countryside in the region.

Preservation of the region's historic resources has many benefits. The area's historic rural character, in large part attributable to those early sites and structures, is a key ingredient driving the success of tourism-related businesses in the region. The unique historic character of each community also provides residents with an important sense of their heritage and link with the past, thus promoting a sense of community identity and pride.

An important first step in any effort to preserve historic resources is to identify them. Fortunately, the Vermont Division for Historic Preservation, with support from local residents and historical societies, has completed comprehensive inventories of historic and archaeological sites and districts in the region. These inventories document historic sites and architecturally significant structures in several identified historic districts and cover individual sites and buildings throughout the region. Communities may wish to expand upon or refine these inventories so that they better serve local planning purposes.

Regulatory tools can help towns preserve historic resources. The Vermont Municipal and Regional Planning and Development Act (V.S.A. Title 24, Chapter 117) enables towns to protect their historic resources by designating historic districts and landmarks under their municipal land use and development (i.e., zoning) regulations. When a local historic district regulation is in place, approval of the municipality is required before new construction may occur and before modifications are made to the exterior appearance of an existing structure within the district. Plans involving the demolition or movement of an historic structure are also subject to such local review and approval in these historic districts.

Design review districts, which may be created to give towns some control over

the appearance of discrete areas of historical, architectural, or cultural significance, or other areas in which there is a concentration of community interest, also can help to protect historic resources and community character. A design advisory board may be created to assist the local planning commission or development review board in evaluating design proposals for new or altered buildings in those districts. Several towns and villages in the region currently have design control ordinances in effect. Performance standards covering the siting and design of buildings in site plan and conditional use review can also support re-enforcement of historic development patterns and forms within these districts. State land use permit review (Act 250) also allows municipal input on the design of major development projects.

Nonregulatory approaches to historic preservation are of equal importance. Local historical societies provide research, documentation, education, and advocacy on behalf of local historic resources and preservation. Developers can be encouraged to incorporate historic structures and important architectural details into their project planning. The adaptive reuse of old buildings that no longer serve their original function is often preferable to the destruction and replacement of those buildings. There are opportunities for historic preservation grants and investment tax credits for developers or property owners who wish to rehabilitate historic structures. Public acquisition and use of particularly important historic buildings may be appropriate when new or expanded public facilities are needed.

Despite the available incentives and regulatory tools, maintaining the viability of historic structures remains a serious challenge in many of our communities. A combination of strategies is necessary to effectively preserve and utilize historic assets. The region's historic preservation objectives can be summarized as follows:

- Maintain each community's special historic and cultural heritage and preserve a sense of place and pride for local residents.
- Maintain those historical and aesthetic qualities that are economic assets to the region and promote the economically viable reuse of historic structures.
- Ensure that the renovation and alteration of existing structures, and the construction of new structures, is done in a manner consistent with the character of the historic district in which they are located.
- Achieve overall visual compatibility within each district through careful attention to architectural, landscape, and site development details.
- Save historic structures whenever possible.

8.5 Rural Areas

Most new development should be directed to established urban centers and villages, but some development has occurred, and will continue to occur, in rural areas outside of villages and urban centers. Such growth must be planned to avoid impacts on the region's rural character and environmental quality and must not result in excessive

costs to municipalities. Historically, rural homesteads were established in conjunction with farms, sawmills, or other businesses associated with the working landscape. In addition, small settlements sprang up at many rural crossroads and other locally convenient sites. These “hamlets” consisted of a small cluster of homes and perhaps a school, church, store, or some other public building. Many rural hamlets are still evident today. These areas are important as focal points for local communities and contribute to the diversity of the rural landscape. For the most part, hamlets have no public water supply or sewage disposal systems, and most of the buildings are located along one or two roads. Hamlets in the Bennington region include the Landgrove and Sunderland town centers, East Rupert, South Dorset, Richville and Barnumville (in Manchester), West Arlington, and North Shaftsbury.

In recent decades, residential subdivisions have created new concentrations of settlement in rural areas. These developments are generally entirely residential, with self-contained road networks and on-site wells and septic systems (some subdivisions, particularly those with multifamily or clustered units, may have community water supplies and wastewater disposal systems). Subdivisions in rural areas range in size from a few to several dozen lots and may consist of single-family homes on parcels of one to ten or more acres, clustered single-family homes on smaller lots, or multi-family condominiums. A few examples of the many rural subdivisions in the region include Dorset Orchard (Dorset), Bromley Brook Woods (Manchester), Wilcox Road (Arlington), the Bacon Hollow/Flynn Hollow area developments (Sunderland), and Hidden Valley (Shaftsbury). Subdivisions must be carefully planned to provide a desirable living environment for residents and to ensure that the rural character and natural resources of the area are protected. In areas containing important natural resources, including productive agricultural soils, proposals for residential developments must retain the integrity of those resources.

Significant amounts of scattered development in remote areas with poor access to town centers can be avoided by promoting development in and around urban and village centers and by using regulatory and non-regulatory techniques to maintain rural open spaces. In addition, municipal plans and bylaws can be structured to require that new developments in rural areas reflect historical settlement patterns. New subdivisions can be planned to incorporate the positive characteristics of earlier rural settlements, such as community identity, public open spaces, and preservation of important resources. Many of these objectives can be realized by clustering lots to create a hamlet-type character around the homes, while setting a significant percentage of the project area aside as open space reserved for agriculture, forestry, or public recreation. Such clustered developments are economically efficient because roads and other infrastructure are less extensive or and therefore less costly to construct and maintain than conventional subdivisions.

Agriculture, forestry, recreation, and other land uses that rely on the region's

natural resources are appropriate uses in rural areas. Certain small-scale industries, especially those related to the region's agricultural and forest resources (e.g., dairy products, sawmills), may be compatible with, and most appropriate in, outlying rural areas. Properly planned residential development may be developed at overall densities of up to two acres per dwelling unit in valley areas where there are few physical or economic impediments to growth. Residential densities of three to twenty-five acres per dwelling unit are appropriate in rural areas that are more remote, at high elevations, have other physical limitations, or which lie in agricultural zones (where clustered development to preserve open land also may be required). Rural developments also must comply with local and state regulations pertaining to water supply and wastewater disposal to ensure protection of public health and the environment. In any case, rural development must not be widely scattered throughout the countryside but should occur as relatively compact and cohesive units that serve to reinforce, rather than to replace, the region's rural character.

A limited amount of commercial development, properly planned and sited, also can be accommodated in rural areas. The "country store" is, after all, a characteristic feature of rural Vermont. Although shopping centers (as defined in this chapter) clearly are not appropriate outside of villages or urban centers, small general stores, service stations, and similar uses that provide goods and services for nearby residents may be located in rural areas. These businesses should be sited only in hamlets or as part of rural planned unit developments. Small-scale or low-density lodging accommodations catering to outdoor recreation-oriented tourists may also be appropriate in rural areas. Municipalities should limit the number and size of such establishments to prevent a proliferation of scattered commercial development that does not serve the needs of the community.

Occupations that are customarily practiced in residential areas, and which do not affect the character of those areas, are another form of small-scale commercial use common in rural areas. Small professional offices, antique shops, and craft studios are examples of such “customary home occupations.” These home-based businesses are protected by state law, and most municipal land use regulations (i.e., zoning) allow them and clearly define the parameters within which they may operate.

Roadside Commercial Development

In the past, more extensive commercial development was planned for and sited in certain rural areas that lie alongside principal state highways. These areas are found in current or former “roadside commercial” zoning districts that were established specifically in response to a perceived need to cater to tourists traveling by car. The area along Route 11/30 east of Manchester’s downtown is an example of such roadside commercial development in the region. Towns should not pursue new roadside commercial designations because additional development in these areas would

negatively impact the economic vitality of nearby villages or urban centers. Commercial uses that generate significant traffic volumes should be avoided along sections of highway that have low sufficiency ratings because of poor visibility, steep grades, poor alignment, or other factors. Moreover, local zoning regulations should include standards that will ensure that existing roadside commercial areas do not deteriorate into unsafe or unsightly "strip" developments. These standards should include provisions for adequate and efficient vehicular parking, ingress, and egress; parking lots located to the rear or side of buildings; minimum lot size and road frontage; building siting and design; restrictions on signs, lighting, and other site structures; and landscaping.

Ski Areas, Golf Courses, and Other Outdoor Recreation Centers

Ski area and golf course development and other outdoor recreation centers are important forms of development in the region's rural areas. With its beautiful mountain slopes, attractive villages, and proximity to metropolitan areas, southern Vermont is an important recreation destination. Southern Vermont is home to several downhill ski areas, including Bromley Mountain in Peru. Such major alpine centers include significant levels of recreational, commercial, and residential development. The region is home to two cross country skiing centers - Prospect Mountain in Woodford and Wild Wings in Peru. These are facilities with extensive trail systems and base lodges, but relatively little other commercial or residential development. Other facilities may also groom cross-country ski trails for public use, such as Hildene in Manchester, and the Dorset Field Club, which allows free use of the groomed trails to the general public.

The Manchester Country Club is located in a rural area of Manchester, while the Equinox Golf Course and Ekwanok Country Club cover extensive open land in Manchester Village. The Dorset Field Club lies just north of Dorset Village, and in the southern part of the region, the Mount Anthony Country Club is located near the center of Bennington between the Bennington Battle Monument and the Walloomsac River. Other important outdoor recreation centers that include some level of land development in rural areas include the Merck Forest and Farmland Center in Rupert, the Equinox Preserve and Hildene in Manchester, and the region's three state parks, in Dorset, Shaftsbury, and Woodford.

There appears to be an increasing demand for rural event venues such as wedding barns, inns on working agricultural lands, or glamping resorts. Hill Farm Inn in Sunderland, Hildene's newly expanded celebration venue, and the recently permitted expansion of Boorn Brook Farm in Manchester are just a few examples in the Bennington region. All of these outdoor recreation-based developments are appropriate and economically important land uses in rural and other areas characterized by open space and low-density development. The associated commercial and residential uses complement the principal recreational uses and are also appropriate in these areas. These ancillary uses, however, must remain in scale with and in close physical

proximity to the primary use. Secondary development associated with these areas should never lead to sprawl or growth patterns that adversely affect the viability of important natural resources, the vibrancy of villages or downtowns, or result in high costs to local governments.

A large ski area like Bromley Mountain is a destination resort, containing a large and diverse array of land uses. The resort has developed a number of attractions and facilities to promote year-round use, economic activity, and employment. These activities are economically beneficial to the region and should be carefully planned to complement the natural and built environment and the area's scenic landscape. The Town of Peru has developed specific ski area planning guidelines and regulations in its municipal plan and land use regulations to ensure that development at the resort is consistent with town goals. Future growth at Bromley Mountain, compliant with local plans and bylaws, is consistent with the regional land use plan. The focus of alpine ski area development in the region should remain on the expansion of existing facilities (Bromley and nearby areas such as Stratton and Mount Snow) rather than development of new ones. Golf courses, cross country ski centers, and other outdoor recreational centers represent an economically viable means of maintaining rural open spaces with little secondary development. Expansion and development of new outdoor recreational centers such as these are consistent with the regional land use plan provided impacts to existing important or critical natural resources are avoided or appropriately mitigated.

8.6 Forests

The regional Forest land use district comprises the most extensive planning area in the Bennington region. This area includes the remote and rugged lands of the Green and Taconic Mountains, as well as isolated valleys such as Black Hole Hollow in Arlington; essentially all of the land outside of villages, urban centers, and rural valleys (Map 8-2). In total extent, upland forests cover approximately 266,500 acres, or 72 percent of the region's land area. Most towns in the region have zoned these areas as "Forest," "Forest and Recreation," or "Forest Conservation" districts where most permanent development is either prohibited or allowed only in certain areas on very large lots with strict environmental controls. Such stringent regulations are appropriate because of conditions characteristic of these primarily upland forest areas. Steep slopes, high elevations, and shallow soils predominate. Year-round roads and structures designed for sustained use are largely absent, and population centers and public services are quite distant.

Conservation of these forest resource areas protects important ground water recharge areas and sources of clean surface waters while helping to prevent soil erosion and downstream flooding. The region's upland forests are critical to the scenic character of the region, and provide a natural backdrop to rural valleys, farmland, and historic settlements. These remote areas also contain critical wildlife habitat and

important archaeological sites and resources that should be protected from incompatible development.

The United States Forest Service is the predominant land holder in the upland forest area, particularly in the Green Mountains, although it has purchased several large parcels in the Taconic Range as well. The Green Mountain and Finger Lakes National Forests, with a regional office in Mendon and a ranger station in Manchester, oversees management of these lands. The Green Mountain National Forest - Forest Plan stresses multiple uses of upland forest areas, including timber production, wildlife habitat, wilderness preservation, and recreational uses. The US Forest Service seeks input from local officials and the BCRC when developing management plans, implementation projects, and when identifying parcels suitable for acquisition.

Although presenting significant limitations to development, upland forests provide many tangible benefits and economic opportunities. These forests have long been used for wood harvesting. Expansion of forest resource use supports regional economic development objectives. When working in upland forests, it is particularly important for loggers to adhere to the Acceptable Management Practices (AMPs) prepared by the Vermont Department of Forests, Parks, and Recreation. Transporting and processing wood products also are appropriate uses in upland forests.

Numerous outdoor recreational activities benefit from the region's extensive forest areas. Hiking, camping, hunting (including camps for hunting or other occasional use), fishing, cross-country skiing, snowmobiling, and horseback riding are a few of the many recreational activities that are appropriate in the region's forested lands. Limited commercial natural resource-based recreation facilities (e.g., campgrounds, cross-country ski centers, alpine ski trails) may be appropriate in areas with adequate access roads. Such facilities also may include lodging and other commercial and recreational facilities associated with carefully planned national or state parks.

Particular care must be observed in areas above 2500 feet in elevation to avoid damage to fragile environments and ecosystem. Lands 2500 feet or more above sea level (all of which are included in the upland forest planning area) demand special attention. In addition to the limiting characteristics noted above, lands at such high elevations are very fragile because of a relatively cold and moist climate, shallow, poorly drained, and easily eroded soils, and the presence of delicate ecological communities.

The region's forests contain vast biomass energy resources. As residential, commercial, industrial, and institutional uses all begin to reduce utilization of imported fossil fuels for space heating, greater use of wood obtained from the region's forests can be expected. Significantly higher levels of biomass extraction can be supported by the region's forests in the future, provided logging practices avoid damage to critical resources, surface waters, and soil nutrient levels are not depleted. Some level of biomass processing, especially for wood chip and cord wood production, also is

appropriate in the upland forests.

Some of the high ridgelines and mountains of the upland forests also offer ideal locations for wind energy turbines and related electricity transmission lines as well as telecommunication installations. These facilities may become increasingly important to the region and can be sited in upland forests provided that sites are developed with proper environmental controls. While disturbance of high elevation lands during construction is inevitable, plans to mitigate damage and restore sites to stable conditions following construction must be developed and followed. Such facilities are, of course, visible over a wide area, so planning studies should be undertaken to ascertain locations that are both economically viable and acceptable to residents of the region. The amount of wind energy generation developed in the region should be limited so that it is not out of proportion with the energy demands of the region. This is discussed further in Chapter 13. The number of telecommunication facilities at high elevations should likewise be limited to the extent possible through co-location of antennae on single towers and, whenever possible, use of multiple transmitters at lower, less prominent locations.

8.7 Land Use Policies and Actions

1. **Centralized, Concentrated Development.** New development should be concentrated in and around established urban centers and villages. Scattered development that is remote and has little relationship to existing settlement patterns should be avoided. Distinctive edges between urban and village centers and rural countryside should be maintained. Municipal plan policies and zoning regulations should strive to retain a clear boundary between the urban centers and villages and the countryside.
2. **Urban Centers.** A variety of residential, commercial, industrial, cultural, and recreational uses, at relatively high densities, is appropriate and encouraged in urban centers. Public investments in infrastructure and public services, and private development activities, should seek to support the development or redevelopment of established urban centers rather than the creation of new concentrations of development. Such new development should be pedestrian-oriented and accommodate bicycle and transit infrastructure. Urban center development must not sprawl into surrounding rural areas.
3. **Villages.** A variety of residential, commercial, industrial, cultural, and recreational uses is appropriate in villages, but at a significantly smaller scale and lower density than in urban centers. Public investments and private initiatives should support growth in existing or planned village areas. New development should respect the small scale and historic character of existing village development and include pedestrian-oriented features and infrastructure.
4. **Rural Areas.** In rural areas, emphasis should be placed on the conservation and

use of natural resources, and the avoidance of costly scattered development that is disruptive of the region's rural character. Low-density residential, small-scale commercial, and compatible recreational uses are appropriate in rural areas. Development should reflect historic settlement patterns and preserve important resources, including productive agricultural soils. Creative land use techniques, including clustered development with open space protections, should be used to retain the integrity of special natural resources.

5. **Roadside Commercial Areas.** Planned commercial or mixed uses within existing roadside commercial zoning districts must be developed carefully to avoid sprawl, traffic congestion, and safety hazards. Roadside commercial areas should not be expanded and should be retracted when feasible and appropriate.
6. **Forests.** Land use in forested areas should emphasize the conservation and wise use of natural resources. The development of permanent improvements and structures for year-round use is generally not appropriate in upland forest areas, although certain important public service facilities may be permitted with proper controls. Forestry and outdoor recreation also are appropriate activities in these areas, and facilities associated with national or state parks are consistent with these uses. Special care must be exercised in areas where the elevation exceeds 2500 feet because of the fragility of the environment. Acquisition of important forest parcels by the United States Forest Service for incorporation into the Green Mountain National Forest is encouraged.
7. **Historic Areas & Features.** Important historic sites, structures, districts, and archaeological sites should be preserved. New development in historic areas should be architecturally compatible with its surroundings. The adaptive reuse of historic buildings is encouraged, and renovation work should maintain the architectural integrity of historic structures.
8. **Residential Development.** The following policies apply to new residential development:
    - Residential development should be concentrated in urban areas and villages and density should be maximized in areas served by water and sewer infrastructure.
    - Outside of areas served by water and sewer infrastructure, the density of residential development should be appropriate to natural conditions and limitations, and consistent with historic rural character.
    - Residential development should be accomplished in a manner that protects soils and mitigates other environmental disturbances where predominant natural slopes exceed 15 percent; residential development should not be permitted where slopes exceed 20 percent.

- Residential projects in rural areas should utilize open space planning techniques by including designs that cluster development in relatively small areas to preserve contiguous open land.
- Residential development in village and urban centers should use a traditional grid street system whenever possible to improve vehicular and pedestrian connections.
- Residential and mixed-use developments should include sidewalks, open space areas, and where possible, areas for recreation and community gardens. These developments should be linked to neighboring developments where possible via roads, trails, and common open space. An efficient utility network should be provided.
- During construction of new residential development, all appropriate measures should be taken to minimize soil erosion.
- Natural vegetation, landscape features, and historic landmarks should be preserved to the greatest extent possible and incorporated in the design of new residential development. Streams, ponds, and wetlands should be maintained in their natural state, appropriate setbacks maintained, and access to these and other open spaces should be provided for residents.
- Prior to any large-scale residential development, a road system capable of handling traffic in a safe and efficient manner must either exist or be planned for immediate construction. The road system should be designed to safely accommodate vehicles, pedestrians, and cyclists, and to provide an attractive streetscape.
- Development which exceeds a town's planned growth rate, or which causes substantial economic hardship to a town because of the increased demand for facilities and services, is inappropriate and shall not be permitted.

9. **Commercial Development.** The following policies apply to new commercial development:
   - Commercial development should be concentrated in urban areas and villages and density should be maximized in areas served by water and sewer infrastructure.
   - Outside of urban centers and villages, the intensity of commercial development must be consistent with the character of the surrounding area, the capacity of adjacent infrastructure, and capability of the land to support it.
   - Commercial developments should include an architectural and landscape design plan that complements the surrounding environment.
   - Space and amenities for public use (e.g., pedestrian pathways, landscaped

areas with benches, bike racks, restrooms) should be provided.

- The amount of noise, glare, and lighting observable from off-site locations must be minimized.
- Adequate parking and loading spaces should be provided and sited with screening to minimize visibility from streets and neighboring residential areas.
- Safe and efficient vehicular ingress and egress to new commercial development must be provided. Access onto roads where steep grades exist or within 400 feet of a major intersection should be avoided. Adjacent commercial developments should use combined curb cuts and connect parking lots and sidewalks internally whenever possible.
- Safe and convenient facilities for pedestrian access and circulation shall be provided for new commercial development.
- Commercial uses that generate large numbers of traffic turning movements should be avoided along sections of highway with low sufficiency ratings, unless located within an established urban or village center.
- Small convenience shopping centers, reflecting the character of the surrounding community, are appropriate in villages. Urban centers may contain convenience, community, and regional shopping centers as defined in this plan, but shopping centers are not appropriate in rural areas.
- Efforts should be made to improve the appearance, traffic flow, and pedestrian friendliness of existing shopping centers so that they enhance the region's urban centers.
- Careful planning should be conducted to ensure that any new shopping centers do not detract from existing commercial areas or appear out of character with the community.
- Large-scale ("big box") retail stores may be permitted in urban centers only if they exhibit exemplary architectural and site design and are shown to be in the best interest of the community after completion of a comprehensive economic/community impact study.
- Projects should provide for a mix and balance of uses; site optimization including compact building groupings with parking located behind and to the sides of buildings, an architectural design that enhances the streetscape, and transportation facilities to accommodate and encourage access via public transportation, bicycling, and walking. Efforts must be made to minimize adverse impacts on existing highway operations and safety.

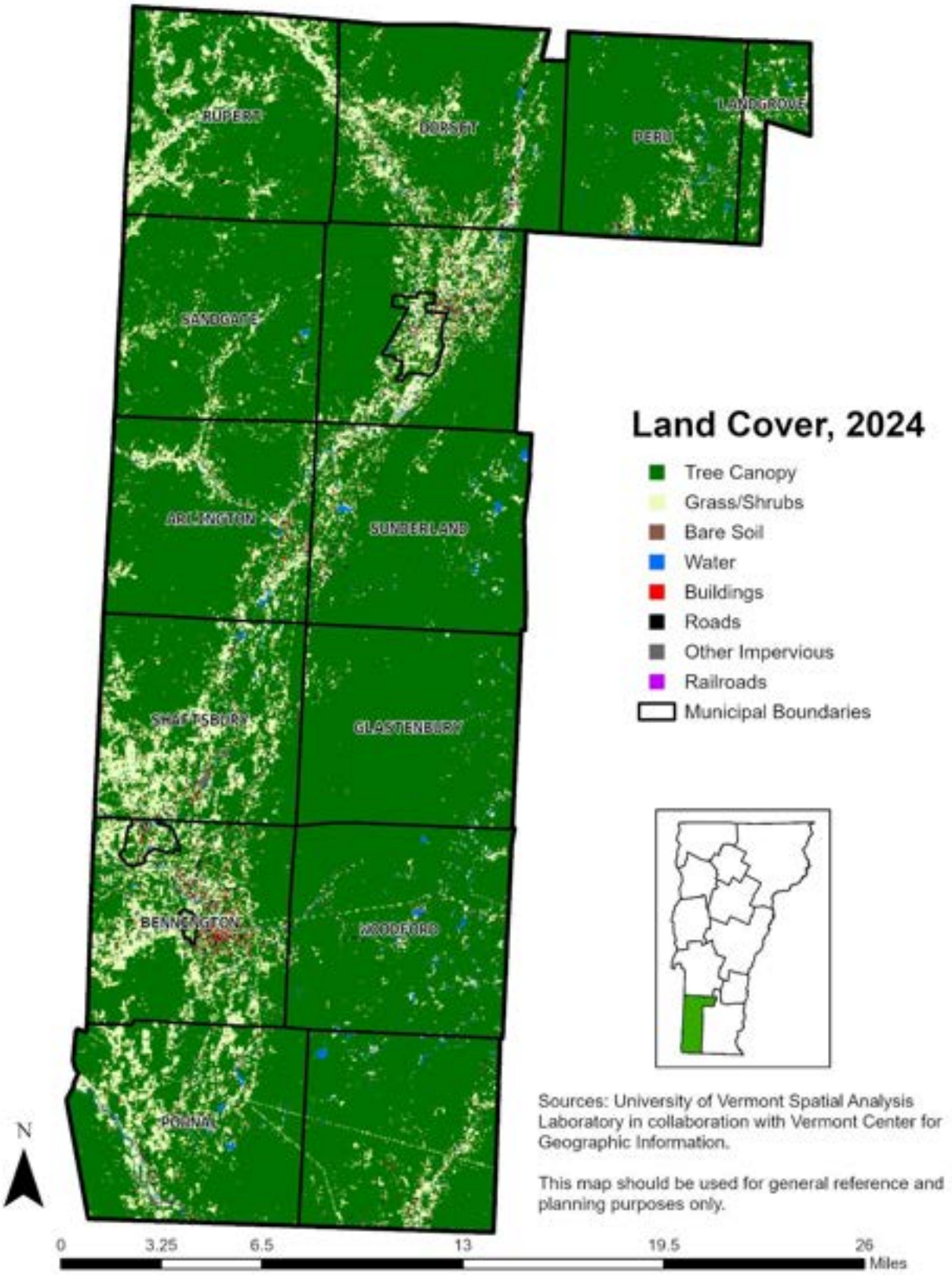
10. **Industrial Development.** The following policies apply to new industrial developments:

- Large industrial developments should be located in or near urban centers or in village areas where adequate supporting infrastructure exists.
- Two or more adjacent industrial uses should be designed as a coordinated industrial park; land within industrial parks should be used primarily for industrial development.
- Utilities, roads, and other essential services should be available and adequate at the time of completion of the industrial development.
- Industrial parks should not be located in areas where truck or employee vehicle traffic would be channeled onto local streets in residential neighborhoods.
- The amount of noise, vibration, dust, odor, glare, and lighting that affects nearby residential areas must be minimized.
- Industrial development should provide meaningful well-paying jobs and should not pollute the environment. Industries that make use of locally available natural resources are encouraged.

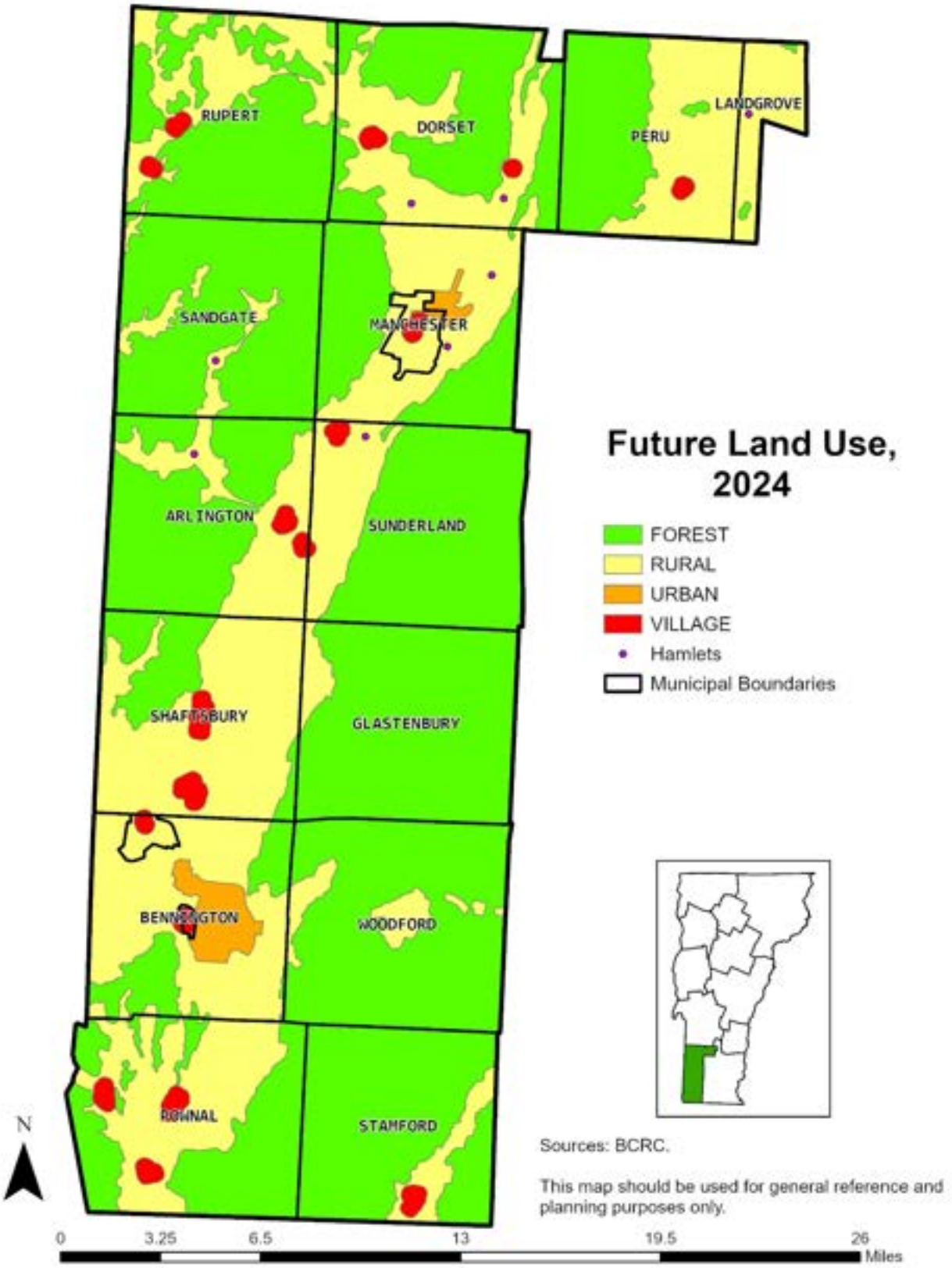
11. **Municipal Plan Policy.** The BCRC will assist member municipalities to develop comprehensive plans and craft and implement land use regulations that are consistent with their plans.
12. **BCRC Role.** The BCRC will further assist municipalities in land use planning. Specific activities should include:
    - Conduct workshops, prepare model bylaws, and undertake other educational projects covering topics such as: developing and implementing land use plans and bylaws, mixed use development, form-based land use codes, land conservation, historic preservation, and village and downtown development.
    - Work with towns to help achieve and maintain village center, downtown, neighborhood, and growth center designations.
    - Assist with planning for infrastructure that can accommodate additional development in downtowns and village centers.
    - Cooperate with towns and other interested organizations in promoting new industrial development in the region consistent with regional plan policies.
    - Continue to work with the United States Forest Service and towns to develop land and forest management plans and to establish criteria for identifying land that is appropriate for public acquisition.
    - Promote continued coordination among municipalities to ensure that local land use plans remain consistent with the regional plan and compatible with each other.

- Promote the development or redevelopment of historic downtowns through planning for capital investments, preparation of creative land use regulations, assistance in planning for the adaptive reuse of buildings and brownfield sites, and the development of riverfront parks and other public spaces.
- Work to minimize sprawl and support the efficient use of energy and other resources. A Resilient Communities Scorecard prepared by the Vermont Natural Resources Council can help towns and villages evaluate the effectiveness of those efforts.

Map 8-1. Land Cover in the Bennington Region.



Map 8-2. Future Land Use Map for the Bennington Region.



9 NATURAL RESOURCES

9.1 Overview

The natural resources of the Bennington region are integral to its landscape and way of life. The contrast between agricultural valleys and forested mountainsides provides the overall visual context for the region while farm and forest-related industries offer great economic potential. The streams, rivers, wetlands, lakes, and ponds of the region represent another critical component of the region's natural beauty and provide important recreational opportunities and habitat for fish and wildlife. Much of the region relies on another water resource—ground water—for domestic use and commercial and industrial applications. The region has a long economic and social history related to earth resources, particularly marble, slate, and sand and gravel. The most ubiquitous natural resource, and one that is particularly crucial to the health of the public and the prosperity of the region, is clean air. These natural resources are extraordinarily important assets, contributing to the health and quality of life of residents while also playing an important role in supporting economic prosperity and future development.

It is the combination of all of these resources, together with the human activity that happens among them, that gives the region its unique character. Wise management and planning is needed to ensure that we benefit from our natural resources today, and that they are conserved so that those benefits and more can be realized by future generations. Although all of the region's natural resources are interconnected and dependent upon each other, the principal resources are discussed in the following sections of this chapter.

Conservation and wise use of these resources is the primary focus of the regional plan, but effective planning for future land use, economic development, and public investments must be considered as well. The information, policies, and recommendations presented in this chapter should be considered in combination with those other factors, as discussed in other parts of this regional plan.

9.2 Water Resources

The quality of surface and ground water resources is vitally important to residents of the region and to the economy. Clean, pure, and abundant water is essential for drinking supplies, agriculture, recreational activities, fish and wildlife habitat, and the scenic quality of the region's landscape. Protection of these resources is an important goal of this plan and is preferable to costly remedial actions that may become necessary following some form of contamination. Several types of water resources, each with special attributes and requiring distinct conservation strategies, are discussed in this section.

Lakes and Ponds

The many small lakes and ponds that dot the landscape of the region (Map 9-1) are irreplaceable natural resources that serve many important functions. There are 33 lakes and ponds in the region at least five acres in size, the largest being Sucker Pond (*aka* Lake Hancock) in Stamford and Bourn Pond in Sunderland (Table 9-1).

Fishing is a popular activity on several of the lakes throughout the year and swimming and boating are important recreational activities during the warmer months. These waterbodies also provide important habitat for waterfowl and many other wildlife species. Moreover, the beauty of glistening ponds nestled among the hills contributes a critical element to the area's scenic values. For all of these reasons, it is important to protect the quality of these resources and to ensure that reasonable public access to them is maintained.

Emerald Lake (Dorset), Adams Reservoir (Woodford), and Lake Shaftsbury (Shaftsbury) are located within state parks and have swimming beaches and facilities for boating, hiking, picnicking, and camping. Hapgood Pond, located in the Green Mountain National Forest in Peru, offers a similar array of recreational amenities. A small, but popular park operated by a non-profit organization is located at Lake Paran (just outside North Bennington Village). These parks all are maintained to provide for public recreational use and their geographic distribution ensures that residents and visitors can conveniently access a lakefront park from anywhere in the region.

It is important that lakes and public lands surrounding them are accessible to the public. Access to the state parks should be available throughout the year, not just during the few months when the parks are officially open. Access to other lakes and ponds may be facilitated through the use of conservation or access easements and public acquisition of particularly valuable shoreland areas. Recreational use and access must be managed, however, to ensure that excessive or inappropriate use does not damage the environment or result in conflicts among different user groups.

All of the lakes and ponds in the region should be afforded a significant level of protection to maintain water quality (see section below on Maintaining Water Quality), but those lying at high elevations should be given special attention. These waterbodies support especially fragile ecosystems that thrive only in a relatively narrow range of water quality conditions. Disturbances in nutrient flow, water temperature, or water chemistry can have serious ecological effects. Fortunately, most of these lakes and ponds are located within the Green Mountain National Forest or in remote areas where development pressures are minimal. The impacts of logging in these watersheds can be minimized through conformance with the Acceptable Management Practices (AMPs) prepared by the Vermont Agency of Natural Resources. A threat to the water quality in these upland lakes that is more difficult to deal with results from airborne pollutants which originate outside the region, often hundreds of miles distant. These pollutants can

cause contamination through acidification of lake water and leaching of chemicals from soils. Such inter-regional and inter-state problems can be effectively addressed only through strong federal air quality standards.

Table 9-1. Lakes and ponds in the Bennington Region (> 5 acres in size)

Lake or Pond Name	Location	Surface Area (acres)	Basin Area (acres)	Elevation (Feet)
Warm Brook Pond	Arlington	11	3,636	762
Lake Paran	Bennington/Shaftsbury	40	9,312	647
Emerald Lake	Dorset	28	3,630	711
Prentiss Pond	Dorset	5	207	929
South Village Pond	Dorset	5	85	760
Bullhead Pond	Manchester	5	29	740
Pickerel Pond	Manchester	9	31	740
Equinox Pond	Manchester Village	15	537	1,100
Griffith Lake	Peru	18	164	2,600
Hapgood Pond	Peru	7	1,568	1,540
Mud Pond	Peru	10	371	1,420
Barber Pond	Pownal	19	170	1,103
South Stream Pond	Pownal	24	3,456	1,100
Thompsons Pond	Pownal	28	548	1,406
Barbos Pond	Sandgate	7	48	1,844
Lake Madeleine	Sandgate	20	100	2,175
Lake Shaftsbury	Shaftsbury	27	2,311	848
Sucker Pond	Stamford	51	259	2,267
Stamford Pond	Stamford	12	260	2,380
Beebe Pond	Sunderland	8	148	2,460
Bourn Pond	Sunderland	48	410	2,552
Branch Pond	Sunderland	34	330	2,632
Lye Brook Pond (N)	Sunderland	10	96	2,600
Lye Brook Pond (S)	Sunderland	18	253	2,600
Adams Reservoir	Woodford	21	817	2,320
Big Pond	Woodford	31	715	2,265
Bugbee Pond	Woodford	8	1,428	2,171
Little Pond	Woodford	16	326	2,602
Mill Pond	Woodford	7	988	2,040
Mud Pond	Woodford/Stamford	6	23	2,240
Red Mill Pond	Woodford	7	1,258	2,260

Invasive species present a challenge for management of lakes and ponds in the region. One major concern in this part of the state has been the spread of Eurasian watermilfoil. This plant adversely affects fish and wildlife habitat and can render areas unsuitable for recreational use. The weed can be spread easily when pieces of a plant become attached to boats and are subsequently released in another part of the lake or in a different lake. Lake Paran currently is suffering from a severe infestation of Eurasian watermilfoil. The Agency of Natural Resources maintains an Aquatic Invasive Species Program to help towns, lake associations, and other lake users manage and control these plants and animals.

Many lakes and ponds in the region have been artificially created through impoundments of streams. Several of these waterbodies have become important scenic and recreational assets and it is critical that the dams that create them are maintained in good condition. The Dam Safety Program at the Agency of Natural Resources administers a permit program for construction and alteration of non-hydroelectric dams, conducts dam inspections, educates dam owners and the public about public safety issues, and operates and maintains a number of dams around the state. Occasionally, a dam may no longer be safe or provide significant benefits to communities and the impounded stream may be more valuable in its natural state. In such a case, a procedure is available that will lead to removal of the dam and restoration of the stream to a natural condition. Such a project recently was completed in Manchester, resulting in the drainage of what had been Dufresne Pond on the East Branch of the Batten Kill. A smaller dam on the Walloomsac River in Bennington was also removed, draining a much smaller impounded area, but also enhancing safety and improving fish habitat.

Rivers and Streams

The rivers and streams of the Bennington region always have been of great importance to people in the area. Native American encampments and the first white settlements were located near rivers and streams. These waterways provided a travel route through the rugged wilderness and served as a source of drinking water and food. As communities grew, streams were relied upon to power mills and factories and to carry away industrial and domestic wastes. As the importance of waterpower declined, many streamside industrial sites were converted to commercial and residential uses. Most often, these buildings were oriented toward the street, and the rivers and streams were ignored or used only for disposing of wastes. Over time, waterways in rural areas became surrounded by agricultural activity occurring on the rich bottomland soils found in the river valleys. Some mountain streams served, and were likely disturbed by, the logging industry, while other remote upland streams remained in a relatively pristine state.

In more recent years, considerable emphasis has been placed on maintaining and improving surface water quality. Fishing, swimming, and canoeing have become

important recreational activities on many waterways in the region. Rivers and streams also have come to be recognized as important aesthetic resources, particularly since many roads run parallel to them. Considerable development (and redevelopment in some village and urban areas) along rivers and streams has taken place in recent years as waterfront property has become more valued and as land has been removed from agricultural use. The towns of Bennington, Pownal, and Manchester also rely on rivers for the disposal of effluent from municipal wastewater treatment facilities.

Four main river systems drain the Bennington region (Map 9-1). The Mettawee River rises in Dorset and flows north through Rupert, Pawlet, and New York State where its waters are directed into a canal that leads to Lake Champlain. The Batten Kill also rises in Dorset, but flows south through Manchester, Sunderland and into Arlington, where the river turns west and flows through a gap in the Taconic Range toward its confluence with the Hudson River in New York. The two rivers that drain the southern part of the region, the Hoosic and Walloomsac, also flow westward to meet the Hudson River. A relatively small area within the region, lying east of the spine of the Green Mountain Range, is drained by streams that are located in the watershed of the Connecticut River. And Vermont's longest river, Otter Creek, flows north from its source waters near East Dorset.

The Mettawee River Valley is one of the most productive and well-established agricultural areas in the region. The Vermont Land Trust has been successful in its efforts to preserve farmland along the Mettawee through the acquisition of development rights. Both aesthetically and functionally, the Mettawee River is an intrinsically important element of that agricultural landscape. The Mettawee is also a popular fishing stream, supporting native populations of brown, brook, and rainbow trout. Maintenance of a vibrant agricultural economy in the Mettawee Valley will help to ensure that the river remains a valuable public resource. At the same time, farmers should manage their land to prevent excess run-off of fertilizers, pesticides, and other contaminants into the river, and take measures to protect the stream banks from erosion that can be caused by livestock.

Perhaps the premier recreational resource in the Bennington region is the Batten Kill. This river has been nationally recognized as an outstanding native brook and brown trout stream and in 1991 was the first river designated under Vermont's Outstanding Resource Waters statute (10 V.S.A §1424a). Studies in the early 2000s by the Vermont Department of Fish and Wildlife documented a significant decrease in the river's trout population. Factors leading to the decline may have included loss of large woody debris that serves as in-stream habitat and the decrease in vegetated stream banks, sedimentation, and an increase in the use of pesticides. The Batten Kill Watershed Alliance (BKWA) was established in 2001 to address these and other concerns. Efforts undertaken by the BKWA and the Bennington County Conservation District, in cooperation with local and state governments, landowners, and other river users, have

significantly benefited water quality and improved fish habitats and populations of the Batten Kill.

The same characteristics that make the Batten Kill a productive and attractive fishery – a swift current, cool clear water from mountain tributaries, a gravel substrate, and the beauty of the surrounding landscape – have drawn many people to the river for recreation. Swimming, canoeing, kayaking**,** tubing, and sightseeing are becoming ever more popular recreational activities in and along the river. The segment of the river lying within the Town of Arlington receives the heaviest use by recreational users. The intensity of use has raised concerns over both potential environmental effects (e.g., litter and stream bank erosion) and conflicts between the various user groups. Providing additional public access opportunities along the Batten Kill and its tributaries may mitigate some of these problems. New access points could disperse some of the use and thus reduce environmental impacts and conflicts among different recreational uses. Of course, regardless of any such efforts, the main channel of the Batten Kill will continue to support intense and varied recreational use. Cooperation among principal users and careful land use planning by local governments will become increasingly important.

The Walloomsac River flows out of the Green Mountains in Woodford, through Bennington, North Bennington, and the southwestern corner of Shaftsbury. While its upper reaches and tributaries lie in relatively undeveloped mountain areas, considerable development has occurred on the banks of the Walloomsac in Bennington since the eighteenth century. The Walloomsac traverses a diverse landscape that ranges from old mills and factories to residential neighborhoods to rural fields and woodlands, all within a few miles. The Walloomsac is stocked with rainbow and brook trout. The Bennington municipal sewage treatment plant also is located on the river. Several projects have been undertaken to better integrate the Walloomsac into the fabric of the community. A new pedestrian bridge has been constructed, a pathway providing access to the river is being planned, and a private landowner has developed a small park and interpretive site on an island near the Paper Mill Covered Bridge. New mixed-use development and rehabilitation of historic structures along the river and additional public greenspace and walkways in suitable locations would serve to direct interest and attention toward this valuable resource.

The North Branch of the Hoosic River runs through the principal north/south valley in the town of Stamford. After merging with several streams and the river's main branch in North Adams, Massachusetts, the Hoosic turns toward the northwest and flows through Pownal. Like the Walloomsac, the Hoosic River flows through a diverse landscape that includes agricultural fields, residential neighborhoods, and industrial developments. Restoration and cleanup of a former tannery site in Pownal has improved water quality, river access, and led to interest in reestablishing hydroelectric generation in North Pownal. A part of the tannery property is now home to the recently

completed Pownal Wastewater Treatment Plant. Although these measures have improved water quality in the river, sediment beneath the river remains contaminated with heavy metals and PCBs. The Hoosic River Watershed Association, a tri-state organization, has been formed to determine ways to continue to improve its water quality and to enhance the public's appreciation of the river.

The many smaller streams within the region – the Indian River, Green River, Bourn Brook, Roaring Branch, Roaring Brook, Paran Creek, and Bolles Brook, among them – are very important, both because they directly affect water quality in the larger rivers and because they provide many of the same recreational and environmental protection benefits. Efforts should therefore be made to protect these streams and to provide for reasonable public access. Some streams and watersheds, such as Bolles Brook which is a primary source of Bennington's water supply, require special management practices.

Tropical Storm Irene (2011) had a major impact on some of the region's rivers and streams. The most significant damage to streams and adjacent lands and properties occurred along the aptly named Roaring Branch streams in Sunderland, Woodford, and Bennington. While flood and fluvial erosion hazards will be discussed in much greater detail in Chapter 10, it is important to note here that the disruption to the aquatic ecosystems, fisheries, and recreational uses of these streams was profound. Local governments have worked with the Vermont Fish and Wildlife Department and, in the case of Sunderland, the US Forest Service to develop and implement plans to reconstruct the streams and adjacent floodplain areas in an effort to both restore ecosystem quality and reduce the risk of future flood damage.

Work on the Roaring Branch in Sunderland focused on moving the stream back to its pre-flood course, adding in-stream features to provide suitable habitat, and stabilization of the adjacent road and embankments. In Bennington, an effort has been made to provide a broader area to contain future flooding and erosive events - giving the stream room to move more naturally within its floodplain. Whenever such extensive rehabilitation work is undertaken it is important that stream engineers and environmental experts be involved during the planning and design phase to ensure that a reasonable balance between stream quality and protection of public infrastructure and private property is maintained.

In summary, the guiding principle for river and stream management is that rivers and streams best serve our communities when preserved in their natural state and maintained for the use and enjoyment of the public. In forested mountain areas, this objective may be realized through public acquisition (as in the Green Mountain National Forest) and encouragement of low-impact recreational uses such as fishing, camping, and hiking. In rural areas, planning and development should emphasize protection of streamside vegetation and wildlife habitats, and public access for recreation. Areas

along waterways in village and urban areas should be priority sites for investments in building renovation and reuse, riverfront parks and walkways, and similar projects that will encourage a renewed focus on these natural resources. In addition, certain waterways may provide a source of electricity through the development of small and environmentally sound hydroelectric facilities. Planning for any of these land use, ecosystem, recreation, or economic development objectives also must consider the need to minimize the potential for severe flood-related damage.

Wetlands and Floodplains

Wetlands are transitional areas between aquatic and terrestrial systems where the water table is usually at or near the surface or the land is covered by shallow water. A wetland has one or more of the following attributes: (1) at least periodically, the land supports predominantly hydrophytic vegetation; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season each year. Benefits provided by wetlands include flood and storm water control, maintenance of surface and ground water quality, open space and aesthetic appreciation, fish and wildlife habitat (including habitat for a large number of threatened and endangered species), ecological research and educational opportunities, and sources of nutrients for freshwater food chains.

Concentrations of wetlands in the Bennington region are found in river valleys and on the high plateau of the Green Mountains (see Map 9-1). There are approximately 10,889 acres of wetlands in Bennington County (US Fish and Wildlife Service data); of these, 4,916 acres are forested wetlands and 4,576 acres are of the "scrub-shrub" variety. Open water wetlands, including those characterized by emergent vegetation, cover about 1,253 acres of land.

The Wetlands Program within the Vermont Department of Environmental Conservation is responsible for identifying wetlands and protecting the functions and values they provide. Activities to achieve these goals include education, project review, and enforcement. The Wetlands Program staff is responsible for the administration, implementation, and interpretation of the Vermont Wetland Rules. Wetlands meeting the following criteria are subject to the rules:

1. Any wetland on the Vermont State Wetland Inventory (VSWI) map.
2. Any wetland contiguous to a VSWI mapped wetland.
3. Any wetland one half acre or larger of the same type and size as shown on the VSWI map.
4. Any wetland that is:
   a. Adjacent to a stream, lake, pond, or river;
   b. A vernal pool;
   c. A special and unique wetland such as a bog or fen;

d. Above 2,500 feet in elevation; or
e. Adjacent to an impaired water.

Many of the region's wetlands lie in the same lowlands where most future development will occur. Consequently, it is important that any regulated activity that could impact a significant wetland be referred to the Wetlands Program for review. Federal wetland reviews of wetland dredging or filling are conducted by the Army Corps of Engineers, Environmental Protection Agency, and US Fish and Wildlife Service through provisions of the Clean Water Act. Several other federal agencies, including the National Park Service and Natural Resource Conservation Service, administer grant programs that encourage the protection of wetlands.

Local communities may wish to inventory wetlands within their jurisdiction in order to identify particularly important wetlands. This information may be used to improve the effectiveness of the state and federal regulatory process. Municipalities also can include measures in their zoning bylaws to protect wetland areas. One local initiative led the state to reclassify the "Dorset Marsh" to a more strictly protected "Class I" status. Bennington is working with the Vermont Land Trust, the Bennington County Conservation District, and the BCRC to inventory and permanently protect a large wetland complex located near Morgan Street and the confluence of Jewett Brook and South Stream.

Floodplains are areas adjacent to rivers and streams that are subject to inundation during exceptionally high-water events (see Map 10-3). Like wetlands, floodplains perform a critical stormwater control function, help to maintain water quality, and provide important habitat for fish and wildlife. Inappropriate development in floodplains can not only degrade these beneficial functions, but also can result in damage to structures through flooding or erosion of land. Such development also can lead to an increase in the amount and severity of downstream flooding when built-up areas are no longer able to retain flood waters adequately. The Rivers Program at the Vermont Department of Environmental Conservation provides technical and regulatory assistance for projects in floodplains to avoid and mitigate flood and fluvial erosion hazards and to restore and protect floodplain functions including stormwater control, retention of sediments, nutrients, and riparian habitat features. Municipalities can obtain assistance through the Rivers Program and the BCRC for development and implementation of flood hazard regulations that restrict development in floodplains while allowing residents and business owners to obtain flood insurance through the National Flood Insurance Program (covered in greater detail in Chapter 10).

Surface Water Quality Management

Maintaining and improving the quality of surface water resources requires planning and coordination at the watershed level. All of the land that drains into a body of water is considered its watershed and a wide range of activities that occur throughout

the watershed can affect surface water quality. Discharges from stormwater flows, effluent from municipal sewage treatment plants and private septic systems, building development, road construction and maintenance, agricultural practices, chemicals from residential lawns and golf courses, and logging activities all can increase the flow of sediments, nutrients, or other pollutants into surface waters. Alterations to streams, floodplains, and wetlands within the watershed can increase the rate at which contaminants enter a water body.

The Watershed Management Division of the Vermont Department of Environmental Conservation is responsible for protecting, maintaining, enhancing, and restoring the quality of the state's surface waters. Toward that end, the Watershed Management Division conducts a wide range of activities including assessment and planning for individual watersheds (structured around 17 basins statewide), regulating stormwater and wastewater discharges, carrying out ecosystem restoration projects, and implementing regulations and projects for the protection of rivers, streams, wetlands, and lakes and ponds. The basis for these programs and specific activities is the Vermont Water Quality Standards that outlines the process for developing basin management plans and include classifications and management standards for all of the state's surface water resources. Water quality types are identified as Class A or B and are managed according to criteria established for each Class: A1 and A2, and B1, B2, and B3. Class A waters are managed for enjoyment of water in its natural condition, including high quality waters with significant ecological values (A1) and waters that serve as public drinking water sources (A2). Class B waters are managed for a variety of uses that may require additional treatment or control, but are still suitable for fishing, swimming, and consumption (with treatment), and agriculture applications. Portions of Class B waters may be designated as "Mixing Zones" or "Waste Management Zones" to allow for proper management of wastewater system effluent and other direct discharges.

A variety of activities result in contamination of surface waters from "nonpoint" sources such as agricultural runoff, stormwater runoff from impervious surfaces, streambank destabilization and erosion (often resulting from removal of vegetation), and various development activities. The Watershed Management Division requires state permits for certain agricultural and construction activities that will lead to increased stormwater discharges and municipalities can include stormwater management criteria and low impact low impact development requirements in their local zoning and subdivision regulations. When incorporated as part of a site design the result is improved water quality, aquatic habitat protection, reduction of peak runoff flow and rate, reduced risk of flooding, improved community value and aesthetics, and long-term cost savings from reduced infrastructure maintenance.

Municipalities also can regulate through zoning and subdivision, and work with river, lake, and watershed interests, to maintain and enhance vegetation along and near

lakeshores and streambanks. Buffers of natural vegetation in these areas are essential to water quality in streams, rivers, lakes, and ponds. These buffers provide the following benefits:

- Support the soil and prevent erosion;
- Intercept and filter pollutants;
- Reduce surface runoff;
- Maintain cooler water temperatures;
- Provide food and shelter for fish and wildlife;
- Increase wildlife diversity; and
- Reduce the impacts of flood damage.

Riparian buffer zones along rivers and streams should be from 50 to 100 feet in width, although a narrower or wider buffer may be recommended through an on-site investigation conducted by an environmental professional. The buffer zone should generally be at least 100 feet from the shore of a lake. In general, wider buffer zones are needed in areas characterized by steep slopes, the presence of critical natural resources, or when developments being proposed could pose a significant threat to water quality. The Vermont Department of Fish and Wildlife maintains information on riparian buffer standards that can be useful to municipalities.

Groundwater

Groundwater is an important natural resource in Vermont. A significant percentage of the state's population depends on groundwater for its drinking water supply. Groundwater also is used for manufacturing, agriculture, commercial enterprises, and to support aquatic habitat. Groundwater is dynamic, responding to internal and external conditions, its quantity and quality varying with climate, precipitation, overlying land use, and the rock and soil types through which it moves. Vermont's geology, characterized by multiply deformed (folded, faulted, fractured) rock and a variety of unconsolidated glacial deposits, is the vessel for Vermont's groundwater resources.

A number of public or community water supplies (water systems with at least 10 service connections or serving at least 25 individuals) are located in the region (Map 9-1). Some of those systems are privately owned and some are owned by municipalities. Major municipal systems exist in Pownal, Bennington, North Bennington (also serving South Shaftsbury), Manchester, and Dorset. The Town of Arlington acquired the assets of the Arlington Water Company in recent years. Arlington completed major line upgrades addressing much of the company's substantial deferred maintenance and water loss, and modernized the utility's administration. All of these systems, and the many private systems that serve smaller neighborhoods and individual developments, rely on a sufficient quantity of clean ground water.

Some of those water supply systems obtain water from springs, some from wells that draw water from aquifers, and some from surface waters that are fed by various groundwater sources. All of these sources require protection from contamination that could degrade groundwater quality, making it unusable or requiring costly treatment. The state's Drinking Water and Groundwater Protection Division establishes source protection areas and administers regulations and technical assistance programs for operators of public water systems. The division also has published a Groundwater Protection Handbook for Local Officials that provides information measures that local governments can take over the short and long term to protect groundwater sources. A particularly important responsibility of local government, discussed in the handbook, is regulation of land use within source protection zones.

Of course, many residents and businesses rely on individual on-site wells to serve their water needs. Protection of these water supplies is also of great importance and is best accomplished through strict adherence to municipal and state health regulations. Because many of these wells are in areas that are not served by public wastewater disposal systems, proper design, installation, and maintenance of on-site wastewater disposal systems is essential, as are maintaining regulatory isolation distances from wells.

9.3 Clean Air

Air is a resource that, although critical to our well-being, is generally taken for granted until it becomes polluted. Air quality in the Bennington region is generally excellent. Maintaining and improving air quality serves to protect public health and supports economic prosperity by making the region attractive for new residents and tourists and by ensuring that new businesses can locate in the area. If air quality conditions deteriorate, certain businesses may be impacted as it becomes difficult or expensive for them to operate without causing violations of ambient air quality standards, exceeding prevention of significant deterioration (PSD) increments, or by impacting the federal Class I air quality area in the Lye Brook Wilderness area.

The Air Quality and Climate Division of the Vermont Department of Environmental Conservation is responsible for monitoring air quality in the state and for ensuring that activities are regulated to limit emission of air pollution.

Several sources of air pollution are of particular concern in the Bennington region. Disposing of trash through backyard burning was a fairly common practice in rural areas that, although much reduced, still occurs with some frequency. The chemicals that are created and released by burning trash increase the risk of many health problems including headaches, heart disease, asthma, emphysema, and cancer. The proximity of the source of the pollution to affected people, including children who experience a greatly elevated risk of illness and disease, makes this practice particularly dangerous. More on the hazards associated with backyard burning of trash, the rules for

open burning, and informational resources for town and village officials can be found on the department's Backyard Burning webpage.

The increasing cost and environmental concerns associated with the use of oil and propane for space heating has caused some shift toward the use of wood as a heating fuel. Modern and efficient wood and wood pellet stoves and furnaces and large-scale wood chip-based heating systems are relatively clean-burning and do not result in a net increase in greenhouse gas emissions (discussed further below). On the other hand, older wood-burning stoves, furnaces, and especially outdoor wood-fired boilers produce heavy smoke and large amounts of dangerous fine particulate pollution (up to 90% more than modern state-certified models). The Department of Environmental Conservation has adopted regulations governing outdoor wood-fired boilers and also oversees an incentive program for people to replace old and inefficient systems with new units. Energy efficient siting, design, and construction of new buildings, and weatherization retrofits to existing buildings will reduce all fuel use and resulting air pollution.

Emissions from motor vehicles are among the most serious and difficult to control sources of air pollution. In fact, because vehicles are so ubiquitous, transportation is the leading contributor to air pollution in Vermont. Emissions testing and standards have reduced pollution produced by individual vehicles, but because the number of vehicles on the road, and the total miles traveled, have increased, total air pollution from automobiles continues to rise. The most effective action that can be taken to reduce air pollution resulting from the combustion of transportation fuels is to reduce the amount of gasoline and diesel fuel used. Reducing the number of miles traveled, improving the efficiency of internal combustion engines, and using alternative transportation systems all can help in this regard. Compact mixed-use development and transportation infrastructure that encourages walking and biking, efficient public transportation, greater utilization of electric vehicles, and improved access and expanded use of freight and passenger rail provide the means for achieving those objectives. Given the relatively low cost of transportation fuels and the convenience afforded by personal automobiles and frequent truck deliveries, it has been difficult to make consequential progress in these areas. While significant increases in fuel prices eventually will provide the necessary incentives for change, the United States could follow the lead of many nations that have enacted higher transportation fuel taxes to both pay for alternative transportation systems and to motivate behavioral changes.

Air pollution from motor vehicles is just one of many types of air pollution that can have significant impacts on our region and state even if the emissions occur in another region, state, or in another part of the world. A long-standing concern has been the deposition of acidic precipitation on the mountain slopes and in the watercourses of the region. Most of the nitrogen and sulfur oxides that contribute to this "acid rain" originate from vehicles and fossil fuel burning power plants far to the west of the Bennington

region. Similarly, “greenhouse gases” such as carbon dioxide and methane that are released during the production and burning of fossil fuels contribute to the warming of the earth’s climate regardless of their source. While cooperation at a national and international scale will be necessary to address such global pollutants, it is important for communities in the Bennington region to participate in efforts to reduce pollution levels. The region also should participate, through the BCRC, in any regulatory proceedings involving industrial point sources that may affect air quality in the region.

9.4 Agricultural Lands

Agriculture is a vital part of the Bennington region’s rural heritage and economic future. The working agricultural landscape maintains the region’s rural character, contributes an essential element to its scenic quality, and is an important component of the regional economy. The characteristic mix of open fields and woodlands also provides habitat necessary to sustain a large and diverse wildlife population. Productive agricultural soils are found throughout the region in lowland valleys (Map 9-2). Although some level of farming activity occurs in every town in the region, significant concentrations of farms and actively harvested cropland are found in Pownal, Bennington, Shaftsbury, and in the Mettawee Valley in Rupert.

The USDA Agricultural Census documents changes in agriculture every five years and reports findings by county. Table 9-2 shows numbers of farms, farm acreage, and value of agricultural products sold for 2002, 2012, and 2022. In the first ten-year period, the number of farms increased accompanied by a small increase in the total amount of farmland while average farm size declined as did the total amount of cropland. However, in the last ten years the number of farms fell back toward 2002 levels and the total amount of farmland also fell while farm size rebounded a little bit and total cropland fell significantly. These trends can be explained by the fact that many people now farm part-time and are involved in more diverse and specialized products. For example, the number of dairy cattle in the region declined by 25 percent between 2002 and 2012 while there was a 25 percent increase in the amount of land devoted to production of fruits, vegetables, and berries. The same time period also saw significant increases in raising poultry (for eggs and meat), cattle, and hogs. The total value of agricultural products sold in the region nearly doubled and the average sales per farm increased by almost 50 percent. These trends continued in the last ten years with a 50% increase in the total value of agricultural products sold and average sales per farm increasing by more than 80 percent.[11]

Maintaining the potential for the region’s best agricultural soils to be used for growing and raising agricultural products is a statewide and regional priority. Many people prefer to obtain food from local sources and, in fact, more robust local food

[11] United States Department of Agriculture, National Agricultural Statistics Service, County Summary Highlights for Vermont, 2002, 2012, and 2022.

systems will become increasingly necessary as food from distant sources becomes more expensive and difficult to obtain due to rising costs, climate-induced production declines, and other environmental concerns. Moreover, the Vermont Farm to Plate Strategic Plan points out that approximately two billion dollars are spent on food in the state every year (close to $100 million dollars in the Bennington region) so local production of food has the potential for lending strong support to the regional economy.

Table 9-2. Agricultural Land Use and Production in Bennington County, 2002 - 2022. Source: USDA Census of Agriculture.

	2002	2012	2022
Total Number of Farms	228	305	251
Total Farm Acreage	41,126	41,387	37,248
Average Farm Size (acres)	180	136	148
Total Cropland Acreage	13,379	11,165	7,114
Total Value of Agricultural Products Sold.	$7.8 million	$15.1 million	$22.5million
Average Value of Agricultural Sales per Farm	$34,292	$49,421	$89,830

Preserving agricultural land and expanding local production also contributes to environmental quality in a number of ways. Utilization of prime agricultural soils for food production ensures that those lands remain open and part of the working landscape. Properly managed farmlands—as outlined in the state's Accepted Agricultural Practices—maximize use, reuse, and recycling of local natural resources, thus limiting waste and pollution. Those same practices reduce the need to use petrochemical fertilizers, while increased local production reduces fossil fuel use related to transportation and processing.

Many approaches can help preserve important agricultural lands. Encouraging development in and around existing village and urban centers relieves the pressure to develop in outlying agricultural areas. Public investments and regulatory incentives should encourage growth in villages and urban centers. Conversely, land use policies and regulations in rural areas containing productive soils should permit only those uses, density levels, and development patterns that will not detract from rural character or substantially reduce the viability of current and future agricultural use. Public investments in roads and other infrastructure in the rural countryside should focus on public safety rather than facilitation of new development. Local zoning and subdivision regulations should provide for innovative practices such as transferable development rights and planned unit developments that require or encourage preservation of important agricultural soils.

Non-regulatory strategies also can be effective in preserving agricultural lands in the region. The Vermont Use Value Appraisal program allows owners of farmland to be taxed based on their property's use for agriculture rather than on its development potential. Acquisition of development rights to agricultural lands, through gift or

purchase, by a qualified land trust or other conservation organization is another proven way to preserve agricultural land. The Vermont Land Trust has conserved a large amount of agricultural and forest land in the region. The Vermont Housing and Conservation Board's Farmland Preservation Program is a significant source of funding for these preservation efforts.

Supporting the economic viability of farming in the region will make it easier and more desirable for owners of good agricultural land to maintain those resources as part of the working landscape. The Walloomsac (Bennington), Manchester, and Dorset Farmer's Markets, community-supported agriculture (CSA) farms, and programs to ensure that locally produced foods are available in local stores and offered in area restaurants are essential to ensuring that strong markets exist for foods that derive from the region's agricultural lands. Improved food storage, processing, and distribution systems also will support local farmers and help to maintain the agricultural component of the region's working landscape.

Conserved Lands in the Bennington Region

A significant percentage of important agricultural and forest lands in the Bennington Region have been conserved through a variety of techniques (see Map 9-3).

- Public land ownership, principally by the US Forest Service (although local governments and the state also own several important parcels), allows for multiple use management of key resource lands.
- Other lands are protected by private organizations such as the Equinox Preservation Trust, Mount Anthony Preservation Society, the Merck Forest and Farmland Center, the Fund for North Bennington, and the Nature Conservancy.
- Many farm and forest properties, especially in the Taconic Mountains and in agricultural valleys, are enrolled in the state's Use Value Appraisal (or "Current Use") program.

9.5 Forest Lands

The forests that cover much of the region's landscape represent an important part of the area's history, contribute to the unique character of our communities, and represent a significant economic asset. The Landscape-Based Forest Stewardship Plan (BCRC, July 2012) for the Bennington region includes a comprehensive description of regional forest resources, issues, and conservation strategies. That plan, and any amendments to it that are adopted by the BCRC, are incorporated into and considered an integrated part of this regional plan.

Extensive unbroken forests cover much of the high elevation and remote areas in the Green and Taconic Mountain ranges, while woodlots, wooded riparian corridors, and other forested landscapes are found throughout the region's valleys and lower

elevation hills. Many people interact most directly with the smaller isolated wooded areas that exist in and adjacent to town and village centers. All of these forest landscapes are important, and the conservation and wise use of the resources they contain present challenges that differ according to physical and political geographies. The overriding objective of planning for forest landscape stewardship in the region, however, is to identify key resources, understand and address threats and constraints to the use of those resources, and to provide effective strategies to ensure that those areas provide maximum benefits to our communities.

The Vermont Conservation Design project has mapped lands and waters throughout the state that represent the highest priority areas for "maintaining ecological integrity." Habitat Blocks are a key underlying element of this initiative to illustrate the comprehensive network of ecosystems in Vermont, as they are an essential way of visualizing large areas of connected natural resources (Map 9-4). As defined by the Vermont Agency of Natural Resources (ANR), a Habitat Block "is an area of natural cover (including forest, wetland, shrubland, rivers, streams, lakes & ponds). It is bounded by roads, development and agriculture." All lands identified in the Vermont Conservation Design initiative are significant; those areas designated as "highest priority" reflect their additional importance relative to their regional context. Habitat Blocks can vary in size, but within the VCD project, all identified Habitat Blocks are larger than 20 acres.

In the Bennington region, there are about 220 Habitat Blocks ranging from 20 acres to 96,600 acres. Habitat Blocks are significant both for the natural elements they include and for their large size, as many wildlife species rely on large areas of contiguous forest to survive and thrive. Additionally, as ANR also points out, these areas are also crucial for sustaining the rural working landscapes that are essential to Vermont's natural and cultural heritage.

A number of strategies can be employed to help retain forest cover and to maintain and enhance their values. Ownership of land by a public or non-profit entity is an effective strategy that has been widely used in the region; a large percentage of the region's forests has been conserved through acquisition. Other public investments, ranging from conservation easements to taxation programs such as the Use Value Appraisal program, also have benefited large areas of forest land in the region. Municipal local land use regulations, coordinated through effective regional planning, has played a major role in limiting the potential for scattered development, particularly in upland forest areas. Historical markets for forest products and emerging markets for use of forest lands have provided economic benefits that help landowners maintain their forested lands. Recreational use and management of forests for lumber, pulp, and biomass for energy provide both economic and social reasons for conserving important forest lands. The potential for meeting a significant percentage of the region's space

heating energy needs with the use of locally sourced woody biomass fuels is particularly compelling.

A variety of new strategies also can support forest stewardship objectives. Regulatory tools such as transferable development rights, planned unit developments, and clearly defining forest resource-based land uses as permitted uses in local plans and bylaws all can be very effective. Education at various levels also has a key role to play. Forest landowners should be educated about existing programs designed to assist with forest management, students need to be exposed to forest science and forestry in their curriculum and appropriate training programs set up and supported, and the general public needs to be better informed about the benefits of forest land conservation and resource management. Another strategy for maintaining forests is the use of landowner cooperatives to reduce costs and open up new opportunities for marketing products.

The Vermont Natural Resources Council (VNRC) has compiled a toolbox of strategies, including all of the items described above, that municipalities, landowners, businesses, and other interest groups can use to advance forest stewardship objectives. The report, Community Strategies for Vermont's Forests and Wildlife: A Guide for Local Action, provides descriptions, examples, and links to useful resources and information.

9.6 Earth Resources

Extraction and use of various earth resources in the region have been important at different times in the past. Mining and processing of marble was once an important economic activity in the area. The abandoned marble quarries of Dorset, many marble sidewalks in area towns, and the bed of the former Manchester-Dorset-Granville railroad are reminders of those days. The mining and processing of slate was important in parts of Rupert and several businesses still operate nearby along the Stone Valley Byway (Route 30 north of Manchester), named to recognize the historic importance of these industries.

The Valley of Vermont, lying between the Green and Taconic Mountain Ranges, was once covered by a large lake and the streams that flowed into it left thick deposits of sand and gravel at their mouths (Map 9-5). These deposits have proven to be important earth resources and considerable extraction and processing continues at this time. The largest and most heavily utilized sand and gravel deposits are located in Shaftsbury and Manchester, although many deposits and active sites are found in towns throughout the region. These extraction operations provide direct employment and also support the area's construction industry. It is important to protect these resources and plan for their use to ensure that they remain available in the future. Identifying important deposits and limiting land uses that would conflict with extraction of the sand and gravel or render those resources inaccessible will help maintain their viability.

Some gravel has been extracted from streambeds, but an extremely high level of scrutiny must be exercised over any such operation because of the potential for downstream pollution and damage to the stream ecosystem. The extraction, processing, and transportation of these earth resources can be damaging to the environment and to public infrastructure if carried out improperly. Potential negative impacts of these operations include:

- Excessive dust and noise that affects nearby residential areas;
- Improper site management leading to soil erosion;
- Failure to follow proper extraction procedures and inadequate site restoration that leaves visual blights on the landscape; and
- Deterioration of town and state highways resulting from frequent trips by heavy trucks.
- Wildlife habitat deterioration, particularly from streambed extraction.

Most municipal zoning regulations contain special provisions designed to minimize the environmental impacts of earth products removal and to require restoration of the site once work is completed. Several large sand and gravel pits pre-date local and state regulations that require rehabilitation. Landowners can work with local governments and the Natural Resource Conservation Service to develop rehabilitation plans that will stabilize the sites and allow for appropriate new land uses.

9.7 Fish and Wildlife Resources

Wildlife

The diverse natural environments in the region provide habitat for a wide range of wildlife species. Mature softwood and hardwood forests, young second growth woods, open fields, streams, lakes, wetlands, and special areas such as transitional habitat edges, and rock outcroppings and cliffs support populations of large and small mammals, amphibians, reptiles, songbirds, raptors, upland game birds, and waterfowl.

Many large native species such as the white tail deer and black bear have thrived in the region as the landscape has become characterized by more forestland and old farm fields. Moose have become relatively plentiful as populations have moved south through the Green Mountains. Other native species such as the wild turkey, pine marten, and fisher, have been reintroduced. The turkey population in particular is doing very well in the region. Wildlife species are valued for many reasons. Some people enjoy hunting, and rely on game for food or income, while others appreciate the aesthetic value of wildlife and the important roles they play in maintaining the quality of physical and biotic ecosystems.

The quantity and quality of specific habitats are the most important factors in maintaining healthy and diverse populations of wildlife. The Vermont Department of Fish and Wildlife has identified critical wildlife habitat areas (see Map 9-6) and developed strategies for their protection. Critical habitats are necessary for the survival of a

particular species at any stage of its life and include areas that support the food, shelter, or breeding needs of those species. Special attention is given to critical habitats of species that are identified as rare, threatened, or endangered in Vermont, homes to significant natural communities in the state, wintering areas for deer, significant wetlands, and high elevation areas (greater than 2,500' in elevation).

Loss of critical habitat can result from environmental factors such as climate change, infestations of destructive insect pests, or rapid colonization by non-native invasive species. Land clearing and development also can impact habitat and cause the displacement of wildlife species. Municipalities can limit the loss of important wildlife habitat by identifying such areas, working with conservation organizations to preserve the most critical areas, and requiring new development to:

- Maintain or create buffer zones between developed areas and wildlife habitat;
- Maintain vegetated corridors along streams, shorelines, wetlands, and to connect otherwise separated blocks for similar habitat types; and
- Utilize construction practices that minimize environmental disturbances.

The Bennington region contains many plant species, animal species, and natural communities that warrant special recognition and protection. The Vermont Natural Heritage Inventory program has identified those areas and has set up a system for people to identify new species and ecological sites to add to the inventory. The plants and animals in these areas are rare because they have very particular habitat requirements, they are at the edge of their range, or because they are especially vulnerable to disturbance. Protecting these species and natural communities helps to maintain ecological diversity and the health of the natural systems that surround us. Identification of the approximate location of these plants and animals in plans and special environmental studies can help target conservation efforts and avoid accidental destruction during development activities.

Lands lying more than 2,500 feet above sea level in the Bennington region are important natural environments that support wildlife diversity (see Map 9-6). Those areas are characterized by thin soils, vegetation that is sensitive to environmental perturbations, low average annual temperatures, and above average precipitation and wind. With limited exceptions for carefully planned public utility infrastructure development, outdoor recreation, and forestry activities, these areas should be preserved in their natural state.

Deer wintering areas, or "deer yards," provide protection from the deep snow, cold temperatures, and wind chill of harsh winters. These critical habitats are often associated with a softwood forest cover, face toward the south or west, are at moderate elevation, and have little human disturbance. Deer travel great distances to use the wintering areas and if the habitat conditions are maintained the deer will return to the same sites every year. Conservation efforts can target these areas and municipalities

can limit development and require mitigation and habitat restoration.

Black bears rely heavily on remote forested habitat areas, large tracts of which are essential for their survival and reproduction. Fragmentation of expansive areas of unbroken forest would lead to a significant decline in the region's bear population. Critical back bear habitat elements within these forested areas include stands of beech trees, oak trees, and wetlands. In addition, undeveloped forest corridors that link two or more otherwise isolated bear habitat areas are crucial to maintaining the population's range and genetic diversity. Recognizing and maintaining these habitat elements is crucial to the health of the region's black bears.

Fisheries

The region's rivers and streams provide cold water habitat for brook, brown, and rainbow trout, smallmouth bass, and several other species of fish, while many of the lakes and ponds provide habitat for largemouth bass, perch, pickerel, and other warm water fish species. In general, all of these water bodies must provide adequate oxygen and support the plant, animal, and insect life that are needed by native fish species.

A number of factors can degrade water quality and fish habitat. Development activities and road maintenance and construction can produce runoff that results in sedimentation and turbidity, affecting the substrate that is critical for supporting invertebrate life and fish breeding habitat, and the quality of the water itself. Unfiltered discharges of stormwater from impervious surfaces and nutrient rich runoff from agricultural operations and other fertilized lawns and fields can introduce damaging chemicals and lead to algae blooms that result in significant drops in dissolved oxygen content. Of course, direct discharges from toxic spills or industrial sites also can threaten fisheries. The Vermont Department of Environmental Conservation oversees water pollution control regulations, including an aggressive program to minimize and mitigate stormwater discharges.

Certain activities of streamside property owners can significantly affect water quality as well. Clearing native vegetation, including trees that overhang and shade the streams, can increase water temperature, destabilize stream banks and cause erosion, and reduce the amount of organic matter that enters the base of the aquatic food chain. Similarly, construction of ponds along or adjacent to streams tends to raise water temperature and reduce dissolved oxygen content and may lead to the introduction of disruptive non-native species. Impacts from these activities can be minimized by following best practice pond management guidelines and by maintaining buffer zones of native vegetation along stream banks. Public access to rivers and streams should be carefully managed as well, with defined areas of access that are designed to avoid erosive damage.

Stream crossing structures—bridges and culverts—can have a significant impact

on the health of fisheries by affecting the stream's substrate and by creating barriers to fish passage, thus restricting access to spawning and refuge areas. Bridges and bottomless plate arches are preferred because they minimize habitat disturbance and are not a barrier to fish passage. When other structures are used, it may be appropriate to minimize impacts to fish habitat by over-sizing the culverts, installing baffles, or burying the culvert below streambed level.

Invasive species also can affect water quality and fish habitat. The Agency of Natural Resource's Aquatic Invasive Species Program has information regarding aquatic invasive species, nonnative species whose introduction can cause environmental or economic harm or harm to human health, and nuisance species (native species that reach proportions of abundance that may cause economic harm or harm to human health). Priority species of concern at this time include Eurasian watermilfoil (a significant problem in Lake Paran), purple loosestrife, didymo, water chestnut, alewife, and several other species.

9.8 Unique Natural Features

The waterfalls, caves, glens, rock outcroppings, mountain summits, and other unique geological, botanical, and hydrological features of the Bennington region's landscape contribute to its special character and should be protected from incompatible development. Many of these landscape features are recreational draws and also contribute to ecological diversity in the region. An inventory that includes many of these features has been compiled and mapped by the BCRC (see Map 9-7 and accompanying Table 9-3), and more information on these resources is available through the Vermont Agency of Natural Resources.

9.9 Scenic and Recreational Resources

Scenic Resources

The scenic quality of the landscape is one of the region's most important assets. The visual appearance of the natural and built environment of our towns and villages, and the quality of life that it represents, is important to residents, tourists, businesses, and to future economic development.

The region is characterized by its expansive valleys that have been able to support a rich variety of rural and urban development. That development has occurred in close proximity to distinctive upland features which have themselves limited and channeled the direction of such growth. The varied nature of the valley landforms and built environment juxtaposed with natural green mountainsides gives the Bennington Region its unique sense of place.

Many individual factors come together to create these special visual landscapes. Particular scenic elements reflect both characteristics that are unique to the region and individual communities as well as certain features that are widely recognized as adding

visual interest to a landscape. Bennington, Manchester Village, and Peru have completed scenic resource inventories and assessments that discuss each of these elements in detail: open fields, mountains, water, distant views, gateways, scenic roads and public places, historical sites and districts, and other unique local features. The scenic resource studies also discuss how those features are organized in the landscape to create pleasing views. The visual qualities of landscape contrast, order and harmony, focal points, spatial quality, and intactness that make a particular view special and unique to the community must be protected to retain the integrity of the resource.

The scenic quality of a landscape can be affected, positively or negatively, by change. A number of landscape features are particularly sensitive to change, among them: views across open fields, prominent ridgelines or hillsides, historical buildings and districts and gateways to those districts, and scenes that include important contrasting elements such as water.

Municipal land use plans and regulations can reinforce the scenic quality of the landscape by focusing development in historical village centers and by preserving the rural character of the outlying countryside. Several local communities have adopted special regulations that preserve scenic resources by requiring aesthetically sensitive design of subdivisions and commercial buildings. In addition, zoning regulations can establish very specific standards and review procedures for new and altered buildings in designated historic design review districts.

Nonregulatory tools also can be used to protect identified scenic resources. Towns and villages should work with conservation organizations such as the Vermont Land Trust to acquire properties, or conservation or scenic easements to properties, that have particular scenic significance to the community. Local and state designated scenic roads, including the region’s three state designated byways, can help provide support for preserving and promoting scenic roadway corridors.

Special attention should be given to visual gateways: points of transition along a public highway where it is evident that the traveler is arriving at a unique place. Gateways are located at entry points to historical downtowns and village centers and at places along rural highways where significant visual elements of the landscape first appear. These features can be improved through effective planning of adjacent land uses and integration of site features such as landscaping and careful placement of historic district signs.

Recent interest in development of renewable energy resources raises a number of important issues. Commercial-scale wind turbines will be highly visible and should be located only in locations approved by local communities. Commercial-scale solar energy facilities occupy large open areas and should not be sited at important gateway locations or in the foreground of viewsheds that have been identified by communities as being of particular value. Biomass (wood) heating and electric generation involve

significant tree harvesting and may include plants with smokestacks and visible plumes of steam. The environmental and scenic impacts of those operations must be considered. Finally, small-scale hydroelectric generation can impact stream water quality, fish habitat, and aesthetics; restricting development to existing dam sites will greatly minimize any such concerns.

Outdoor Recreational Resources

The region's natural environment provides a wide variety of outdoor recreation experiences; camping, hiking, running, hunting, fishing, road and mountain biking, snowmobiling, snowshoeing, downhill and cross-country skiing, and swimming and boating are enjoyed by both residents and tourists. Many of these outdoor recreational pursuits rely on the willingness of landowners to allow access to private lands. While public recreational use of private lands is important, vandalism, littering, and a general disregard for private property can lead to more and more land being restricted. Landowners must feel confident that their land will be respected by the public if these areas are to continue to be used for recreational activities.

The Bennington region also contains extensive public land and land owned by nonprofit organizations that are widely used for recreation. Portions of the Appalachian Trail, Long Trail, Catamount Trail, Taconic Crest Trail, and the D&H Rail Trail all traverse the region. The Green Mountain National Forest occupies much of the upland forests in the region, and three state parks, several wildlife management and fishing access areas, and a number of town-owned parks and forests mean that recreational opportunities on public land are never far away. These public and conserved lands are economic assets and contribute to the quality of life of the region's residents. Acquisition of additional land well suited for outdoor recreation by local, state, or federal agencies, and by private conservation organizations, can be beneficial to the region. In general, publicly owned lands should include areas that are managed for multiple uses to accommodate a variety of recreational activities.

Local trail networks, sidewalks, bike paths, and bike lanes also are important outdoor recreational resources. Towns and villages should seek opportunities to develop new bicycle and pedestrian facilities and connect them to form networks and to provide access to existing trail networks and outdoor recreational sites. New developments can be planned to include facilities that encourage walking and should be designed to allow for continued use of existing trails in the area.

The region's rivers and lakes offer opportunities for swimming, fishing and boating, all of which require public access for parking or boat launching. Emerald Lake, Lake Shaftsbury, and Woodford State Parks, the Hapgood Pond Recreation Area in the Green Mountain National Forest, and the recreation center at Lake Paran all offer facilities for recreation on small lakes, and their geographic distribution ensures that no resident of the region is far from one of the parks. Public fishing access areas are

available on the Mettawee River, Batten Kill, Walloomsac River, and Hoosic Rivers, and public access for boating and swimming have been developed in certain areas along these rivers as well. Recreational use of these resources, and access to them, must be managed to ensure that excessive or inappropriate use does not damage the environment or result in conflicts among different user groups.

It is important that public parks and conserved natural areas remain accessible to the public throughout the year. While maintained park facilities generally are open only for a few months in the summer, these outstanding resource areas offer outstanding opportunities that should be available to residents throughout the year. Local officials should work with state and federal resource managers to ensure that residents have year-round access to these lands and waters. Municipal plans, such as the Woodford Town Plan, can include specific references to off-season use at parks located within their borders.

9.10 Natural Resource Policies and Actions

1. The natural characteristics and values of the region's surface water resources must be preserved. Techniques such as maintenance of an undisturbed buffer, generally at least 50 feet in width, between developed areas and rivers, streams, lakes, ponds, or wetlands are advisable to ensure the protection of water quality and natural ecosystems. Greater buffer distances often are needed based on topographic conditions and the affected waterway. Agricultural and forestry activities should follow prescribed best management practices to minimize degradation of water quality. The density and type of new development in shoreland areas should be controlled to prevent environmental damage and protect resource values.
2. Recreational uses such as fishing, boating, and swimming are appropriate in natural settings in and along rivers, streams, lakes, ponds, and wetlands. Development planning should include provisions for public access to these resources. The intensity of use and access points should be limited in particularly fragile ecological areas.
3. Construction of in-stream ponds and other activities that disturb aquatic ecosystems or degrade water quality are strongly discouraged. Existing dams that no longer serve a useful purpose, and which do not have significant potential for energy generation, should be removed.
4. River corridor plans should be developed by towns and villages, with assistance from the BCRC, and implemented to allow the natural hydrological functions of waterways to occur without damaging natural ecosystems, public infrastructure, or private property.
5. Water quality should be maintained through comprehensive watershed

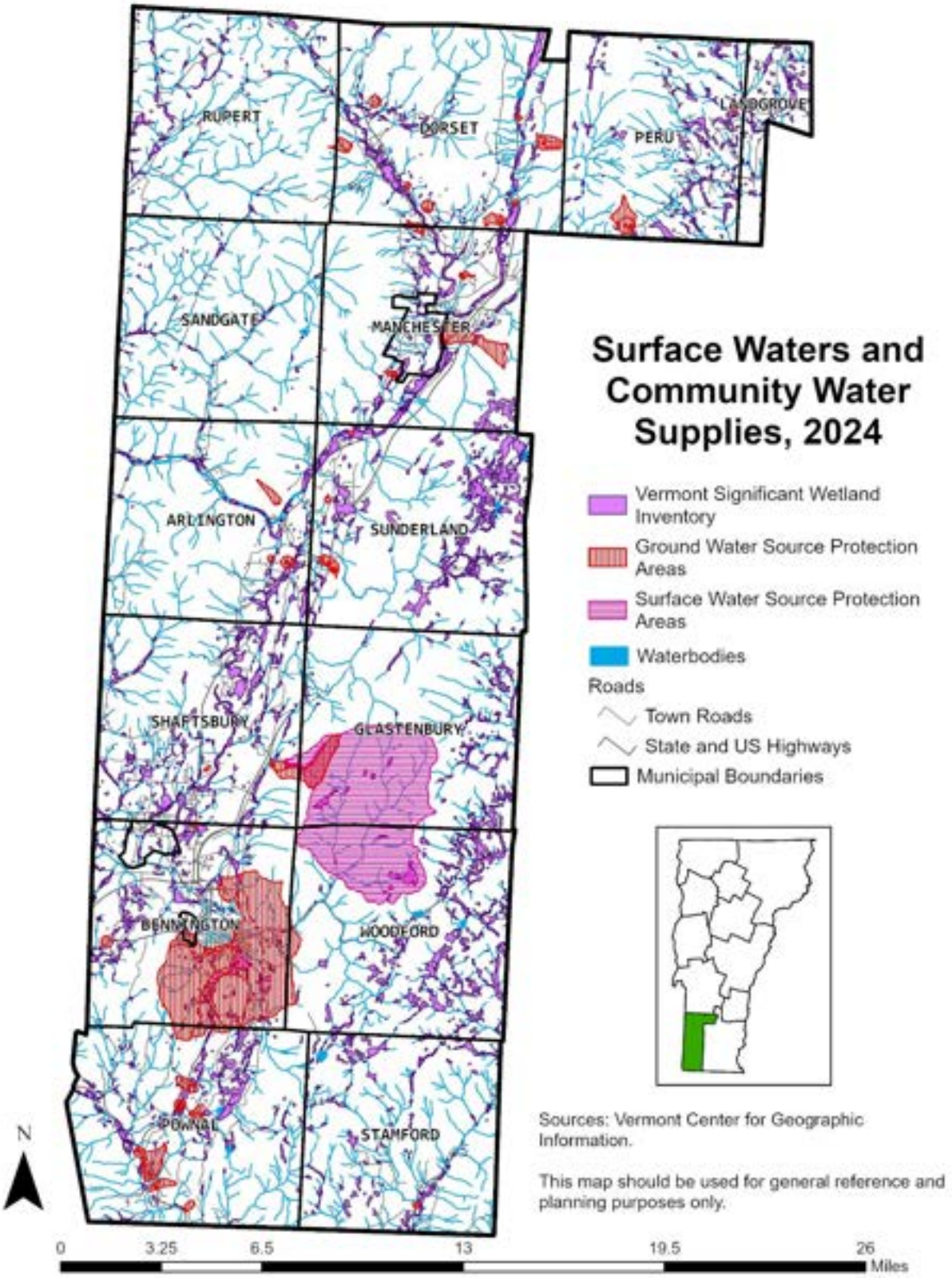
management activities, including enforcement of appropriate standards for stormwater discharges, and direct and indirect discharges from highway maintenance and land development.

6. Aquifers and groundwater recharge areas, including all source protection areas, must be protected from activities or development that would adversely affect the quantity or quality of these waters. Municipal subdivision and health ordinances, and state regulations, must be strictly enforced to protect individual water supplies.
7. Land development and other activities that would significantly degrade local or regional air quality, or that would impede economic development in the region, should be prohibited. Compact development patterns and alternative transportation systems that reduce the use of motor vehicles should be supported. Efforts to limit damage to the region's air quality that may result from pollution sources beyond the region also should be supported.
8. To discourage the loss or fragmentation of important agricultural and forest lands, public sector planning and investments should promote growth in planned compact centers and should discourage scattered development in outlying areas.
9. Land development occurring on or near important agricultural or forest soils should be planned to preserve the viability, or potential viability, of the site for farming and forest resource-based activities.
10. Land suitable for community gardens in or near villages and urban centers should be identified.
11. Support agricultural and forestry-based business in the region and the development of local and regional markets for primary and value-added products.
12. Developments should be planned and permitted in a manner that will not preclude the future utilization of important earth resources.
13. The extraction and processing of earth resources and the disposal of wastes must not have an unduly harmful impact on the environment or surrounding land uses and development. Upon completion of extraction and processing, the site should be restored and left in a condition suited for an approved alternative use.
14. An activity or development in the vicinity of important natural areas, fish habitat, or wildlife habitat must be carefully planned to avoid adverse impacts to the resources. The objectives of maintaining protective riparian and shoreland buffers, wildlife corridors, and avoiding habitat fragmentation should guide natural area planning in the region.
15. New building construction on visually prominent shorelines, hillsides, mountains, and ridgelines should include provisions for siting and screening structures to

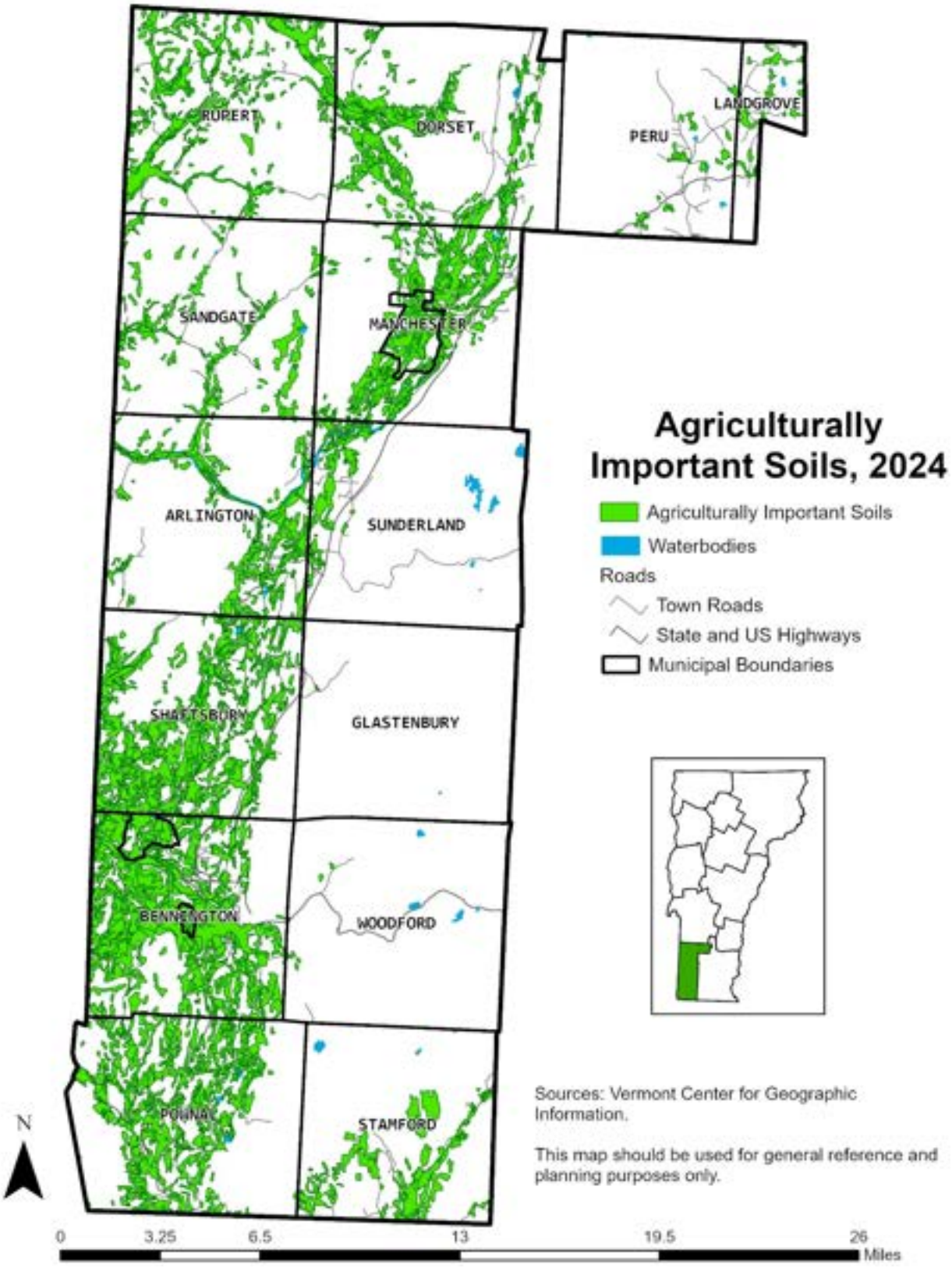
protect important scenic values. Municipalities are encouraged to adopt appropriate ordinances to ensure that locally significant scenic resources are protected.

16. Wind generation and telecommunication facilities on mountains and ridgelines may be appropriate to meet identified public needs but should be avoided when construction would destroy critical natural resources or degrade a viewshed identified as essential to maintaining the unique character of a community or the region.
17. Maintaining and improving public access to important outdoor recreational areas and sites in rural areas is a priority for the region. Redevelopment of waterfront properties in developed areas for residential, commercial, or recreational use is appropriate and must consider incorporating flood safety measures as appropriate.
18. Owners of valuable agricultural and forest lands should consider participation in the Vermont Use Value Appraisal Program.
19. The BCRC should continue to participate in cooperative planning for regional natural resources. Such planning may consider issues related to environmental quality, public health, recreational use and public access, fish and wildlife habitat, agriculture and forest productivity, and scenic values, and should involve representatives of local governments, special interest groups, and other interested parties.
20. Acquisition of important forest lands by the U. S. Forest Service, following consultation with affected local governments, is a valuable way to maintain and enhance resource values and opportunities.
21. Acquisition of valuable resource lands by local and state government, land trusts, or private conservation organizations, also can be an appropriate and effective conservation strategy.

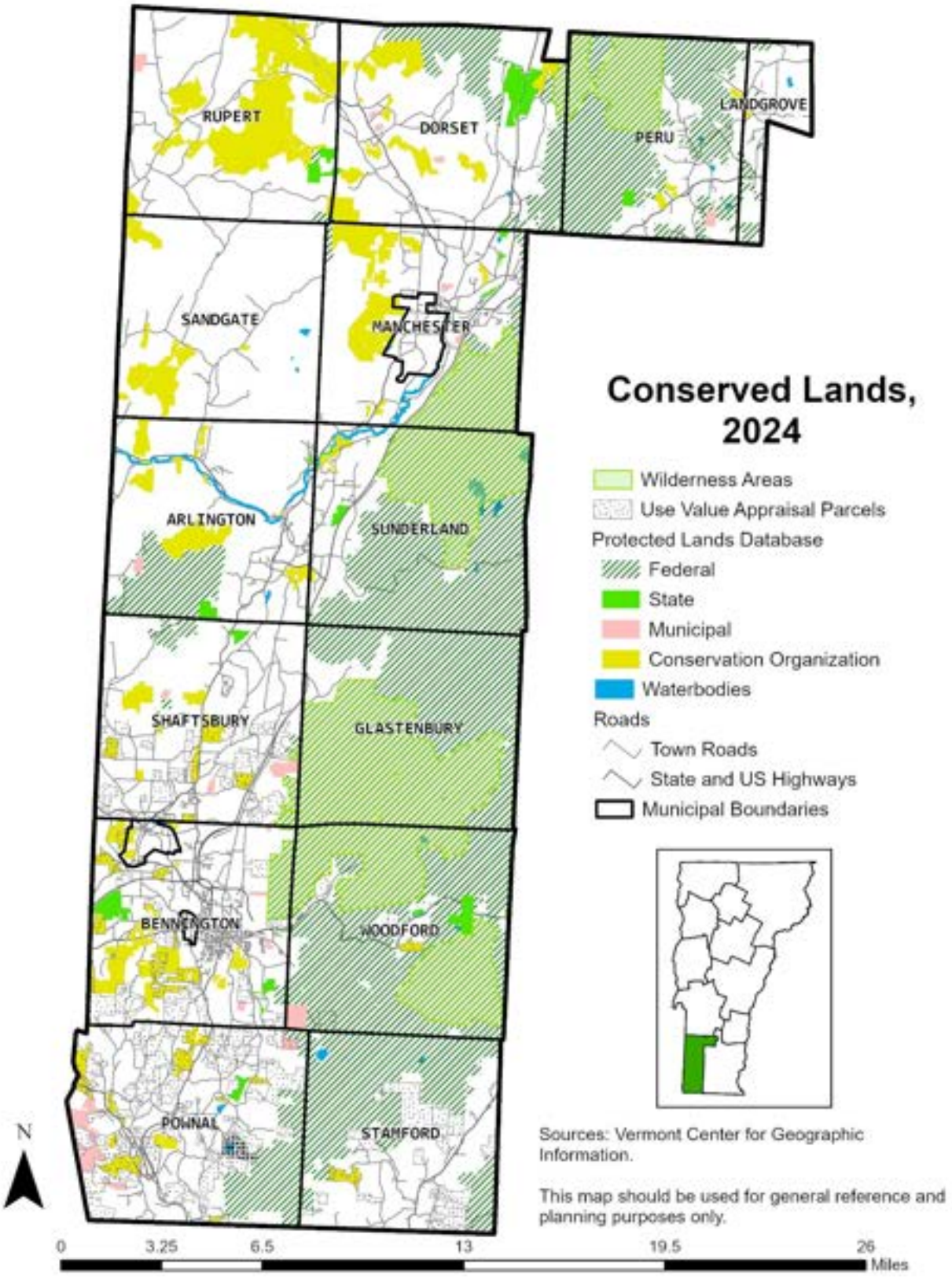
Map 9-1. Surface Waters and Community Water Supplies in the Bennington Region.



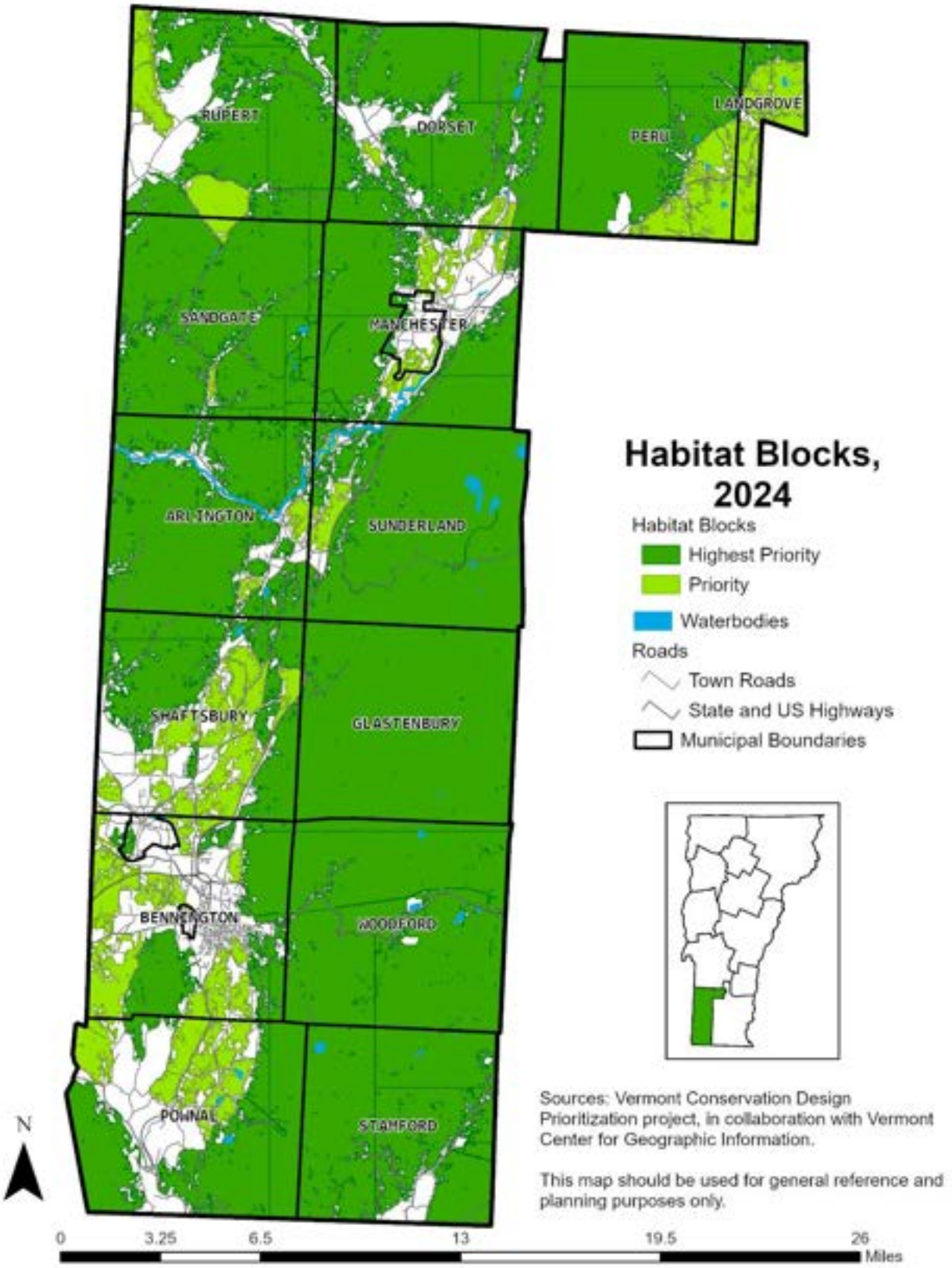
Map 9-2. Agricultural Soils in the Bennington Region.



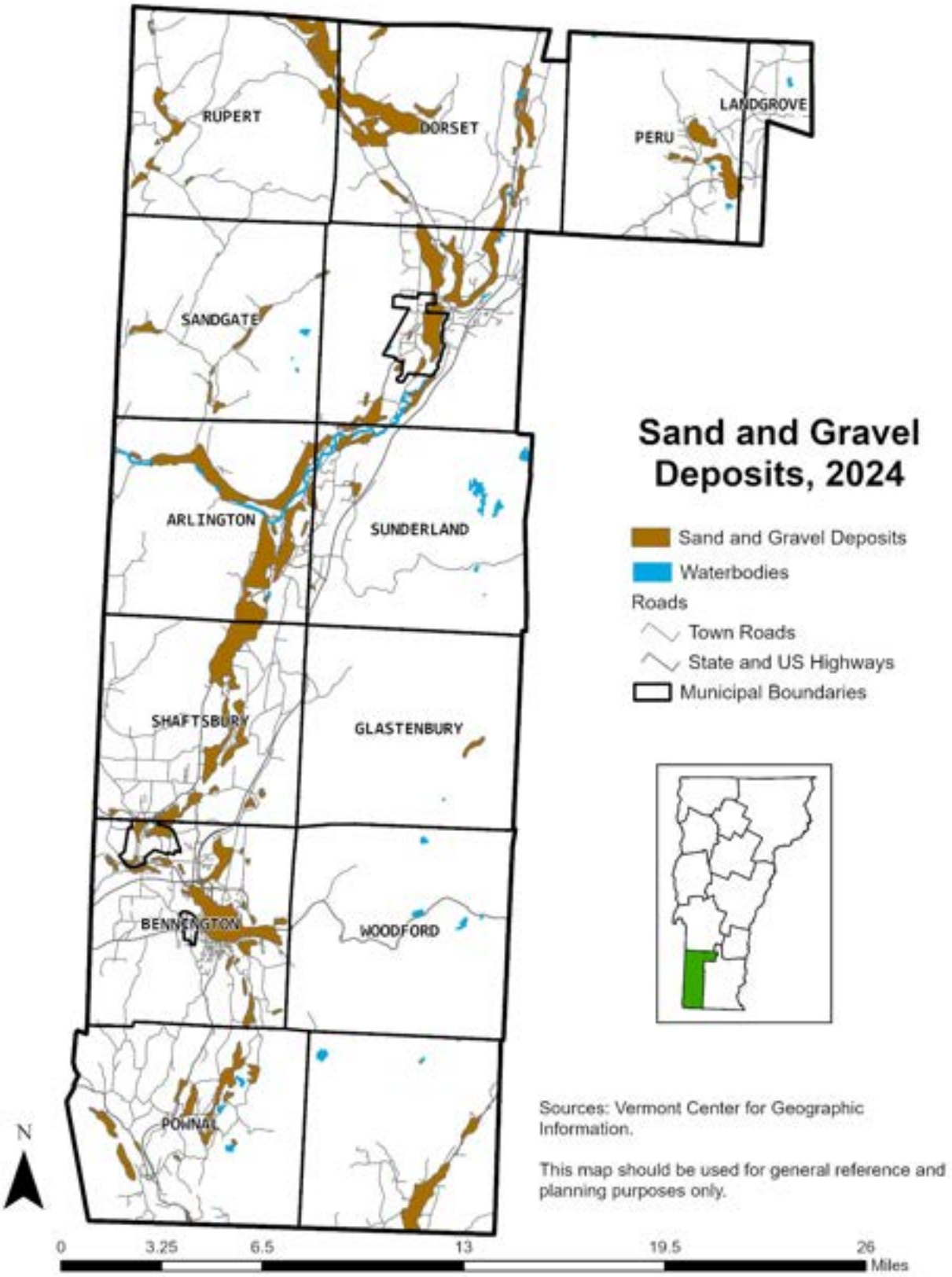
Map 9-3. Conserved Lands in the Bennington Region.



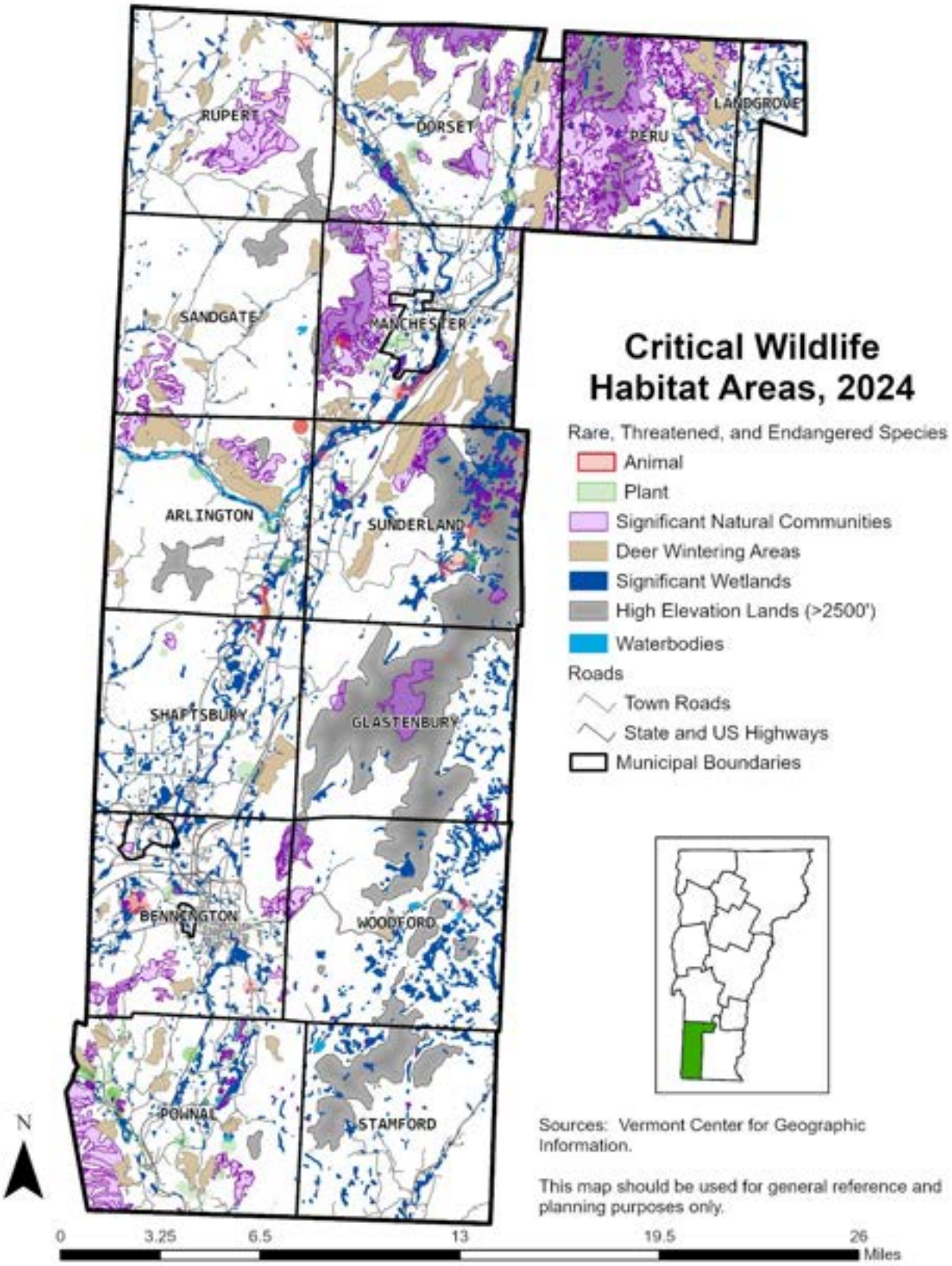
Map 9-4. Habitat Blocks in the Bennington Region.



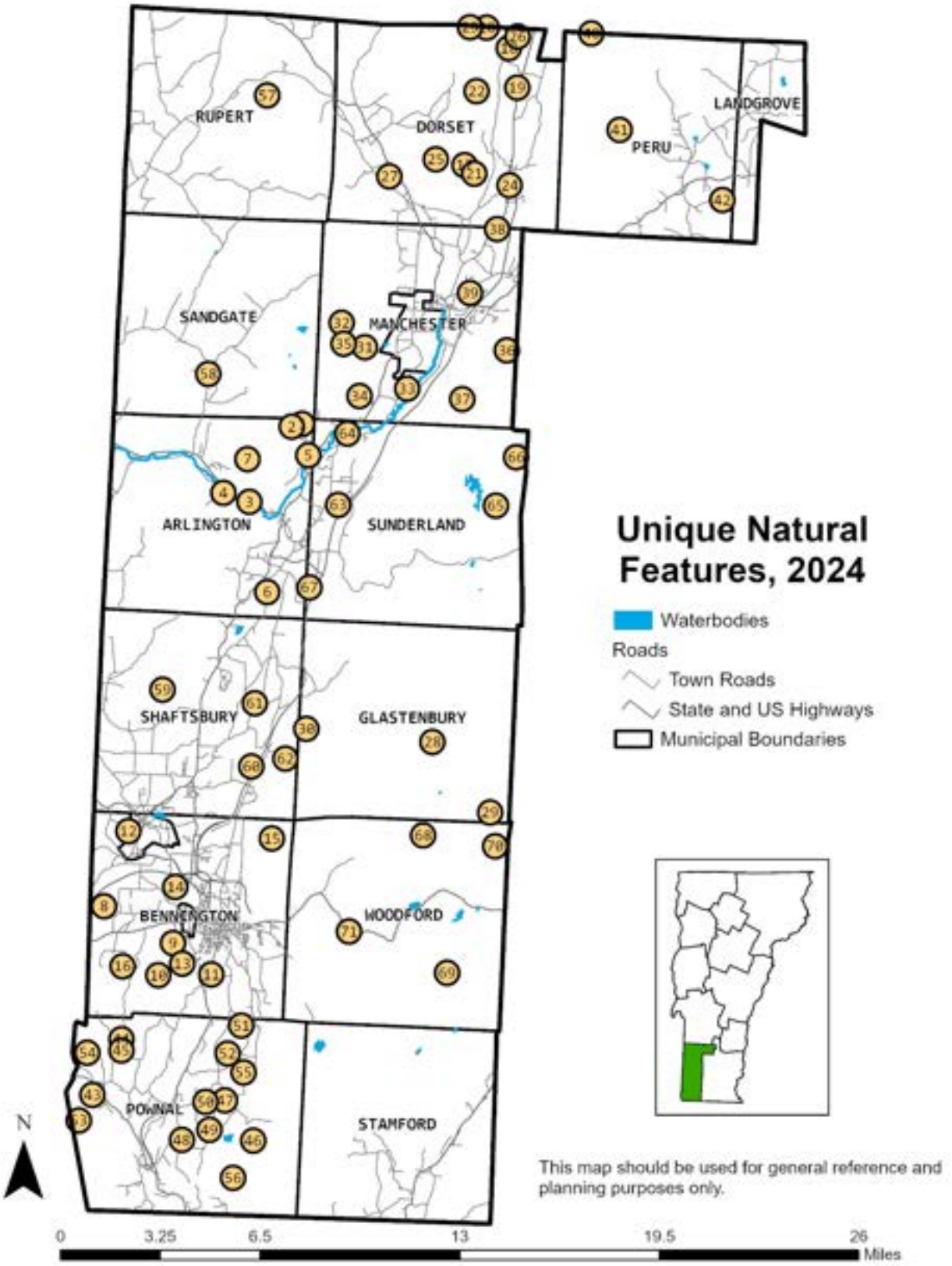
Map 9-5. Sand and Gravel Deposits in the Bennington Region.



Map 9-6. Critical Wildlife Areas and Lands Over 2,500' in the Bennington Region.



Map 9-7. Unique Natural Features of the Bennington Region.



Town	Number	Natural Feature
Arlington	1	Kents Cave
	2	Falls on Red Mountain Stream
	3	Arlington Folds
	4	Batten Kill
	5	Canfield Pines
	6	Warm Brook Pond
	7	Hidden Falls
Bennington	8	Whipstock Hill
	9	Everett Cave
	10	Mount Anthony
	11	Jewett Brook Marsh
	12	McCullough (Mile-Around) Woods
	13	Bennington Tulip Trees
	14	Silk Road Alluvial Forest
	15	Stratton Brook Falls
	16	Pit of Misery
Dorset	17	Green Peak (Mount Aeolus)
	18	Emerald Lake Natural Bridge
	19	Emerald Lake Beach
	20	Dorset Peak Caves
	21	Dorset Bat Caves
	22	Ketchum Meadows
	23	Dorset Mountain
	24	Dorset Dikes
	25	Owl's Head Mountain
	26	Falls Cliff and Tallow Caves
	27	Dorset Marsh
Glastenbury	28	Glastenbury Mountain
	29	Castle Meadows
	30	East Mountain Red Spruce
Manchester	31	Cook Hollow
	32	Equinox Mountain
	33	Batten Kill
	34	Dyer Quarry
	35	Skinner Hollow Cave
	36	Downer Glen
	37	Lye Brook Falls
	38	Bullhead Pond
	39	Barnumville Punch Bowl
Peru	40	Griffith Lake
	41	Mad Tom Notch
	42	Mud Pond
Pownal	43	Kreiger Rocks
	44	The Tubs on Bathtub Brook
	45	Hemlock Gorge
	46	The Dome
	47	Barber School Meadows
	48	Chalk Pond
	49	Swamp of Oracles
	50	Cranberry Bog
	51	Maple Grove Swamp
	52	Middle Pownal Road Swamp
	53	Pownal Mount Laurel
	54	Peckham Hill
	55	South Stream Waterfowl Area
	56	Pownal Red Pines
Rupert	57	Merck Forest
Sandgate	58	Green River Valley
Shaftsbury	59	West Mountain
	60	Shaftsbury Cobbles
Sunderland	61	Trumbull Mountain
	62	Basin Brook Falls
	63	Beaver Meadows
	64	Batten Kill
Woodford	65	Branch Pond
	66	Bourn Pond
	67	Beaver Valley
	68	Little Pond
	69	Stamford-Woodford Plateau
	70	Mill Pond Meadows
	71	Bennington Road Cut

Table 9-4. Inventory of Unique Natural Features in the Bennington Region.

10 CLIMATE RESILIENCE

The importance of preparing for, responding to, and recovering from serious climate events has become increasingly apparent in recent years, as communities all over the world have faced extreme heat waves, dangerously poor air quality, record amounts of rain in short periods of time, and consequential flooding. Vermont and the Bennington region in particular are not exempt from these impacts of the climate crisis.

This new reality was brought into sharp focus in the Bennington region, and throughout Vermont, when Tropical Storm Irene hit the area in August 2011. After a wet year left soil moisture in southern and eastern Vermont at the 90th percentile, the torrents of rain that came down on August 28 caused catastrophic damage in many communities. The Bennington region sustained damage to homes, camps, automobiles, and businesses in the flood-impacted areas. The most extensive damage was to municipal and state transportation infrastructure and public utilities. The VT Route 9 bridge in Woodford was destroyed, closing the only highway connecting Bennington to points east and the Kelly Stand Road in Sunderland was completely destroyed. The multimillion-dollar project to rebuild that road was completed, and the road reopened, in October 2014.

As serious as the damage was in the Bennington region, other parts of the state suffered even more severe losses. Entire downtown districts suffered major damage and business loss, several communities were completely cut-off from outside road access for weeks, and entire riverside neighborhoods were destroyed, unfortunately with some loss of life. If the center of Tropical Storm Irene had followed a line just a few miles further west, the damage in communities within the Bennington region could have been much more severe.

In July 2023, Vermont experienced another devastating rain event that also unleashed destructive floods. After an exceedingly rainy June, similar to the lead up to Tropical Storm Irene, ground moisture levels were high and the soil's capacity to absorb further rainfall was depleted. Heavy rain over the days of July 9, 10, and 11 was non-stop and widespread. Rainfall amounts of 3 to 9 inches were recorded throughout the state. The July event was followed by heavy rain and snow melt in December that caused similar flooding.

While the 2023 storms primarily impacted the central part of the state, homeowners, businessowners, and other community members in the Bennington region faced damages as well. Roads in Dorset and Landgrove were washed out and needed extensive repairs. Homes and businesses were flooded along Mad Tom Brook in Dorset, Bourn Brook in Manchester, and the Batten Kill in Arlington. In comparison to Irene, southern Vermont fared better after the 2023 events—in part thanks to actions, such as culvert upsizing, that were implemented after Irene. However, with comparable

catastrophic events occurring in the state just twelve years apart, it highlights the importance of prioritizing mitigation actions. Additionally, flooding in December 2023 and July 2021, while not as catastrophic, still had severe impacts on the Bennington region and points to the increasing frequency of such events.

Changing climate conditions mean that extreme weather events are likely to occur with much greater frequency. It is imperative, therefore, that communities properly prepare to minimize future damage and develop the capacity for climate resilience. Climate resilience extends beyond acknowledging the rise of natural disasters and bolstering physical resources, though; resilience also means supporting the most vulnerable members of our community so that we can all be prepared when the next storm comes. This chapter aims to address the primary climate disasters that the Bennington region will face in the coming decades—flooding and extreme heat—with both physical and social factors in mind.

10.1 Social Factors

In addition to environmental hazards, our communities may be at increased risk due to social factors that limit community resilience in response to climate disasters. The disproportionate impact of the climate crisis on marginalized and vulnerable communities is the focus of the field of environmental justice. At the state level, Vermont's environmental justice policy requires "providing a proportional amount of resources for community revitalization, ecological restoration, resilience planning, and a just recovery to communities most affected by environmental burdens and natural disasters."[12]

In Bennington County, about 25 percent of the population lives in disadvantaged communities as indicated by census tract data compiled by the Council on Environmental Quality. According to the council's Climate and Economic Justice Screening Tool (CEJST), many of the most vulnerable members of our community are living in Pownal and downtown and northeast Bennington (see Map 10-1). These neighborhoods have higher concentrations of low-income residents, as well as people facing transportation barriers, high asthma rates, high energy burdens, closer proximity to superfund sites, and projected flood risks.[13] Such interrelated risks mean that people living in these areas are especially vulnerable to climate hazards, and less likely to be able to quickly and safely recover.

Additionally, the 2023 Vermont State Hazard Mitigation Plan identifies three Economically Disadvantaged and Rural Communities (EDRCs) in the Bennington region: Rupert, Sandgate, and Woodford (see Map 10-2).[14] These communities were identified as EDRCs because they have populations of less than 3,000 and their

[12] 2023 Vermont State Hazard Mitigation Plan (SHMP) xiii
[13] https://screeningtool.geoplatform.gov/en/methodology#9.57/13.0371/-99.4344
[14] SHMP (2023) 25

average community income does not exceed 80% of the national per capita income. According to the State Hazard Mitigation Plan, an EDRC is eligible for both federal and non-federal cost sharing for mitigation planning, in accordance with the Robert T. Stafford Disaster Relief and Emergency Assistance Act.[15] Such resources help to lessen the cost of hazard mitigation planning, and also work to identify communities in the region that may be especially vulnerable to climate hazards. The BCRC will assist these communities to secure this funding for hazard mitigation planning.

Environmental justice applies to a wide range of issues affecting community well-being, including housing, access to medical care, food security, transportation security, and social connectivity. Considering the environmental and social co-benefits of expanding affordability and access throughout communities results in positive impacts on overall climate resilience. When developing mitigation and response strategies for the number of environmental hazards the Bennington region may face, the BCRC will consider strategies that can support the most vulnerable community members to bolster resilience from the ground up.



10.2 Climate Hazards

Study of storms in the Bennington region occurring throughout the last 30 years reveals that heavy precipitation (including lightning, rain, hail, and heavy snow), floods, and freezes have been among the most damaging weather events experienced in the past 30 years. While the region has been mostly spared from widespread damage that other areas of the state suffered under Irene and the July and December 2023 storms, the Bennington region still experienced costly damage from flash floods and winter storms.

In the coming years, the primary hazards the Bennington region will face include warming temperatures—which may verge on extreme heat; extended droughts; and

[15] SHMP 25

increased precipitation leading to more flooding. In the 2022 state climate summary for Vermont, the National Centers for Environmental Information (NCEI) identified these climate features as the three main anticipated hazards for Vermont as a whole.[16] The NCEI summary for Vermont mentioned that "2010 to 2020 was the warmest 11-year period on record" in Vermont, and determined that Vermont will face increasing temperatures coupled with more frequent extended drought and extreme rainfall events throughout the remainder of this century.17 The following sections will dive more deeply into those specific hazards to understand the threats they pose to the Bennington region.

Flooding

According to the 2023 Vermont State Hazard Mitigation Plan (SHMP) "fluvial erosion and inundation flooding continue to be the first and second most significant natural hazards" in the state.[18] Flooding can stem from both *riverine inundation*, during which river water levels rise, and *fluvial erosion*, during which streambed and streambank erosion occur, resulting in shifting dimensions of stream channels.[19] Fluvial erosion is the most common cause of flood-related damage in Vermont.[20]

The floodplain is the overall area where flooding occurs. As noted in the State Hazard Mitigation Plan, "FEMA defines the portion of the floodplain inundated by the 1% annual chance flood [also described as the "100-year flood zone"] as the Special Flood Hazard Area (SFHA); the area where the National Flood Insurance Program (NFIP) floodplain management regulations must be enforced and where the mandatory purchase of flood insurance applies for federally secured loans."[21]

Except in Old Bennington, which has no mapped flood hazards, municipalities in the Bennington region have effective Digital Flood Insurance Rate Maps (DFIRM) and flood hazard areas, both of which are viewable on the Vermont Planning Atlas. Most municipalities in the Bennington region have identified flood hazard areas in their comprehensive plans and have land use regulations that control the type of development that occurs there. In several communities, however, a large number of existing structures are located in these areas (see Table 10-1). Bennington, for example, is located on a level plain where several streams merge from various directions and has several hundred structures located in the flood hazard area. Pownal includes several dense housing developments, primarily mobile home parks, that are located in the flood hazard area, and several important commercial areas in

[16] https://statesummaries.ncics.org/chapter/vt/
[17] https://statesummaries.ncics.org/chapter/vt/
[18] SHMP (2023) x
[19] SHMP (2023) 65
[20] SHMP (2023) 68
[21] SHMP (2023) 66

Manchester's downtown, where the east and west branches of the Batten Kill meet, also lie in areas threatened by floodwater inundation.

River corridors require special attention because of the potential for flood-related damage to buildings and critical infrastructure resulting from the erosive force of floodwaters. River corridors include the areas adjacent to rivers that are required to accommodate meanders and changes in course that are needed to maintain dynamic equilibrium over time. River corridor maps have been developed based on scientific, location-specific assessment of the geomorphic (or physical) condition of a river developed by the Vermont Rivers Program. The Department of Environmental Conservation delineated river corridor maps (see Map 10-3), demarcating "the width of the meander belt of a river and an additional 50' buffer."[22] For small streams, river corridors are not mapped but do include a 50' buffer from the top of the bank of streams with a watershed less than two square miles.[23]

Table 10-1. Structures located in mapped Flood Hazards and River Corridors.

Municipality	Structures in Special Flood Hazard Area	Structures in River Corridor
Arlington	96	182
Bennington	494	380
North Bennington Village	9	41
Old Bennington Village	0	0
Dorset	29	37
Glastenbury	0	1
Landgrove	1	9
Manchester	70	120
Manchester Village	4	10
Peru	0	7
Pownal	158	86
Rupert	13	45
Sandgate	1	40
Shaftsbury	12	27
Stamford	19	34
Sunderland	5	42
Woodford	0	76

[22] https://dec.vermont.gov/watershed/rivers/river-corridor-and-floodplain-protection/river-corridor-and-floodplain-maps
[23] *ibid*

As noted above, most flood-related damage in Vermont results from the erosive power of water causing damage to buildings and critical public infrastructure such as roads, bridges, and culverts (i.e., structures within river corridors). Public water and sewer systems, parks, and important historic sites also have been damaged by flood-related erosion. Where stream meanders are confined by human activity, the waterways lose their equilibrium and become steepened, straighter and more powerful, significantly increasing the risk for damage.

10.3 Particular Flood Related Risks

Housing

Because of Vermont's historic development patterns that have centered around rivers, housing in floodplains and river corridors is a common risk throughout the state. In particular, this problem has an even more damaging effect on residents of manufactured homes. One study estimates that while manufactured homes made up only 7% of the state's housing stock in 2011, they constituted 15% of the housing damaged by Hurricane Irene.[24] Working with community-owned or -led parks to prepare for emergencies, and working with state agencies to expand financial support for residents of manufactured homes after disasters hit are important steps to take for these members of our community.

Transportation Network

Roads and stream crossing structures (culverts and bridges) are particularly vulnerable to damage from flooding. Many existing culverts are too small to carry flood waters and too narrow to accommodate the stream channel, causing a back-up of sediments and creating plunge pools that damage roads and imperil nearby properties. It is important for communities to assess the physical and geomorphic condition of its culverts and bridges, to maintain a record of the status of this infrastructure, and to develop a plan for needed upgrades.

The Vermont Transportation Resilience Planning Tool (TRPT) is especially designed to help communities identify vulnerable elements of their transportation network. A web-based application, this tool considers risk and criticality of roads, bridges, and culverts to identify especially vulnerable areas. The tool also suggests potential mitigation measures for at-risk road segments. All municipalities should use TRPT to identify the most vulnerable parts of the transportation network at a localized scale; then, they can use recommended mitigation efforts to prioritize interventions. Additionally, to correctly size replacement structures, towns and villages should adopt the most current Vermont Agency of Transportation "Orange Book" road and bridge standards.

[24] Irene: Reflections on weathering the storm (2013) 27.

Dams

Occasionally flooding can result from a more specific infrastructure problem, like a dam failure. In the Bennington region, Lake Paran and Paran Creek in the Village of North Bennington have been identified as having high-risk dam inundation areas.[25] Funding administered through the state can help support municipalities with the safety and upkeep of dams, to prevent against increased risk.

Preventative Steps

Several towns in the region have adopted regulations to protect river corridors as mapped by the Agency of Natural resources, formerly mapped as fluvial erosion hazard (FEH) zones. Existing structures along a stream or river that is far out of an equilibrium condition are at risk. However, the most important reason to protect river corridors is to allow the river to adjust to the changing levels of water, sediment, and energy, and thereby dissipate its destructive potential through flooding prior to impacting concentrations of residential or commercial properties or critical public infrastructure. It is equally important that new local or state infrastructure be located outside hazard areas, or when that is impossible (as with the case of some highway, bridge, and water treatment facilities) that it be designed and constructed to mitigate risk. Towns and villages can learn more at the municipal planning section of the Flood Ready Vermont Website.

Several communities in Vermont, including Bennington, participate in the FEMA Community Rating System (CRS). Because these communities have taken extra steps to reduce flood damage, flood insurance policies through the National Flood Insurance Program (NFIP) are discounted from 5% to 45%. Additional information about CRS and other flood hazard initiatives is available from the Watershed Management Division of the Agency of Natural Resources.

Natural Mitigation

Elements of the natural environment play an important role in minimizing the extent of the risk from flooding. Upland forests help to retain water during storms and minimize the erosive forces that would add sediment and debris to river channels. Wetlands, both upland and those adjacent to lowland surface waters, retain stormwater and protect water quality during and after heavy rains. The Natural Resources chapter of this plan documents the region's extensive forest cover as well as the location of wetland areas.

Incorporating strategies for preservation of these natural features into local and regional planning is vital to developing long-term flood resilience in the region. Continued mapping of flood hazard areas and river corridors, resource conservation, and outreach to municipalities and property owners will ensure that risks are located

[25] SHMP (2023) 71

and understood. To assist in this effort, the Vermont Department of Environmental Conservation created the Functioning Floodplain Initiative, a web-based mapping tool and accompanying resources that allows users to identify and prioritize nature-based solutions to protect the health and functionality of waterbodies in Vermont.[26]

Another program created to protect river corridors and their surrounding communities is the River Corridor Easement Program, which aims to create a financial incentive for landowners to transfer their river channel management rights. Through the easement, the river corridor is then protected from any further development and additional riparian buffers are put into place.

Insuring Residual Risk

All of the region's communities except the unorganized town of Glastenbury and the very small village of Old Bennington, which has no mapped flood hazards, have flood hazard regulations generally included as part of their zoning bylaws. These regulations allow communities to participate in the National Flood Insurance Program (NFIP) and, through that program, for property owners to have access to flood insurance. Under federal law, lenders must assure that mortgages for structures in the FEMA-defined special flood hazard area are insured for flood risk. However, many structures in special flood hazard areas do not carry flood insurance and many structures are not fully insured to receive "replacement value" after a disaster. If a structure is not insured the owner assumes the entire risk of property loss. In the event of a flood disaster a landowner may be eligible for Individual and Households Program (IHP) assistance through FEMA but this funding will not cover any losses that could have been insured.

A community's historic structures present another flood insurance related concern for municipalities. Historic structures must pay actuarial flood insurance rates like any other structure. Many community regulations provide an exemption for historic structures from the requirement to elevate when substantially improved (such as during restoration). However, a building with a basement or a low floor below base flood elevation may have a very high flood insurance rate. This may add to the cost burdens of maintaining historic structures.

Flood insurance information is available for consumers at FEMA's Floodsmart website (www.FloodSmart.gov). The site will help identify properties in areas of defined flood risk, explain the FEMA map products, and outline insurance options. Recent federal legislation that requires the NFIP to pay accumulated debt and build a reserve fund to handle the costs of large disasters resulted in increased cost of flood insurance, but insurance for affected properties remains available through the NFIP.

[26] See also: https://ffi.stone-env.net/home

10.4 Extreme Heat and Drought

Extreme heat is an increasingly pressing problem throughout the United States. According to an online storymap developed by the Climate Mapping for Resilience & Adaptation (CMRA) program, "heat has been the leading cause of weather-related deaths in the United States" in the past 30 years.[27] In addition to posing a major health risk, extreme heat also impacts commercial and agricultural businesses, and infrastructure.[28] While Vermont has not borne the brunt of the rising temperatures, there is a history of extreme heat in the state and in the Bennington region. On July 1, 2018, NOAA recorded an excessive heat event in Bennington and Windham Counties.[29] Extreme heat events are expected to continue to occur with increasing frequency in Vermont in the coming years.

Between the late nineteenth century and 2022, the average annual temperature in Vermont increased by 3.6°F (0.2°F per decade).[30] This warming has happened at a heightened pace in the past 60 years. Summer temperatures are estimated to have increased 0.2°F per decade and winter temperatures by 0.7°F per decade.[31] As reflected in the CMRA online tool, this trend is projected to continue through the end of the 21st century, with predictions that Bennington County will experience 11 to 31 days annually with temperatures above 90 degrees, 2 to 12 days annually with temperatures above 95 degrees, and 0 to 4 days annually with temperatures above 100 degrees (the range reflecting low- and high-emissions scenarios).[32] These increased temperatures have severe implications for public health, as well as natural systems, agricultural practices, local economies, and infrastructure.

Heat Illness

The impacts of heat-related illnesses are relative: the risks of heat-related health impacts depend greatly on how acclimated people are to hot weather.[33] In a place like Vermont, that has historically been relatively cool, even a lower heat index value could have serious consequences for vulnerable populations. Older adults are at particularly high risk for heat-related illnesses, as well as young children, people who are pregnant, outdoor workers, people with chronic health conditions, people with disabilities, unhoused people, people living alone or in isolation, people struggling with addiction, and people living in more urbanized areas. The impacts of high heat are further exacerbated when typical homes and other structures lack air conditioning or other

[27] https://storymaps.arcgis.com/stories/5e482f11d2514191bb89c20638d98b3c
[28] SHMP (2023) 99
[29] SHMP (2023) 101-102
[30] SHMP (2023) 103
[31] SHMP (2023) 103
[32] CMRA - Climate Mapping for Resilience and Adaptation (arcgis.com)
[33] SHMP (2023) 105

cooling technologies. These unequal impacts raise serious equity concerns around the effects of extreme heat on already vulnerable populations in Vermont.

In 2016, the Vermont Department of Health developed a heat vulnerability index using data on demographics, socioeconomic status, health status, environmental characteristics, ability to acclimate, and emergency room visits to determine each town's vulnerability to extreme heat. Eight towns in the Bennington region were considered more vulnerable than the state mean, with Bennington scoring in the most vulnerable category.[34] Although the Vermont Heat Vulnerability Index data is now several years old, communities throughout the region should keep track of any updates from the state and work to mitigate elements within their control, such as anti-poverty social services, environmental factors (tree canopy, impervious surfaces, housing availability), and chronic public health conditions.

In addition to individual health impacts, extreme heat can also exacerbate the spread of disease and bacteria in the natural environment, with resulting consequences on people's health. Shorter winters and subsequently longer warmer seasons in Vermont have correlated with rising cases of tick- and mosquito-borne illnesses, such as Lyme's disease and West Nile Virus.[35] Warmer temperatures also impact water bodies, leading to cyanobacteria blooms that can result in rashes, digestive problems, or serious health issues when people spend time in the affected water.

Urban Heat Island Effect

The "Urban Heat Island Effect" is the phenomenon of having higher temperatures in more urbanized areas because of the greater concentration of impervious surfaces (such as sidewalks, roads, and parking lots), the lack of tree coverage, and the lack of water. While the heat island effect is not a widespread issue in the Bennington region, it does contribute to the inequitable impacts of climate change. In our region, this is particularly true in the Town of Bennington, where larger areas of impervious surfaces and greater concentrations of low-income community members coincide.

Infrastructure

The stability of the electric grid is a paramount concern for all aspects of climate resilience, and especially when thinking about the impacts of extreme heat. Loss of power from a storm or from an overloaded electrical grid would threaten the health and safety of the affected populations, and steps should be taken to mitigate these risks. Extreme heat also threatens built infrastructure, especially in the realm of transportation.

[34] The other more vulnerable towns include Rupert, Sandgate, Manchester, Arlington, Shaftsbury, Pownal, and Stamford. See: Vermont Heat Vulnerability Index.
[35] SHMP (2023) 107

Effects can include expansion of steel and concrete in bridges, softening of road asphalt, buckling of concrete pavement, and bending or buckling of railway tracks.[36]

Natural Resources

While increasing drought seems contradictory to the more intense precipitation and floods Vermont has already experienced in recent years, the two phenomena are actually closely linked. The CMRA tool predicts increasing amounts of average annual total precipitation combined with an average decrease in the number of wet days per year, meaning Vermont is expected to receive more rain (4-6 more inches per year compared to 1976-2005 levels) over fewer days (3-6 fewer) with increasing dry periods.[37]

Wildfire threat is relatively low in Vermont. However, with increasing temperatures and heightened periods of drought, communities in the region should remain vigilant for potential wildfire conditions. One metric of wildfire risk is determined by looking at the wildfire-urban interface (WUI), an "area where structures and other human development meet or intermingle with wildland [creating] an environment where fire can readily move from a forests and grasslands to neighborhoods."[38] The Bennington region includes a large stretch of WUI (see Map 10-4) that has been identified as either interface or intermix—designations that depend on the density of housing developments.[39] The Vermont Forest Action Plan observes that the WUI leads to human/wildland interactions that degrade the natural environment, including native habitat loss, forest fragmentation, establishment of invasive exotic species, predation or interference from domestic pets, and degradation of water quality. The plan concludes: "These trends will threaten biodiversity and ecosystem health if WUI residents and communities are not attentive to the potential harms and actively caring for the environment around their homes."[40]

While wildfires may not be pervasive within Vermont, the effects of increasing wildfires elsewhere in the world still have an impact on Vermonters' quality of life and health. In June 2023, smoke from Canadian wildfires blanketed much of the east coast of the United States, including Vermont. The air quality during that period of time was considered unhealthy for all populations. The air quality index in the Bennington region was particularly poor—record high particulate matter concentrations were measured at the Morse Airport in Bennington on June 6 and 7.[41] Feeling the impacts of far-flung natural disasters in Vermont can only be expected to increase in the coming years.

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[36] SHMP (2023) 108
[37] CMRA - Climate Mapping for Resilience and Adaptation (arcgis.com)
[38] Vermont Forest Action Plan (2017) 41
[39] Wildland Urban Interface: 2020 (Map Service) | US Forest Service - Geospatial Data Discovery (arcgis.com)
[40] Vermont Forest Action Plan (2017) 41
[41] SHMP (2023) 183

Economies

Vermont's economy may likewise be affected by extreme heat and its related impacts. Agricultural industries, like maple sugar production, produce farming, and dairy production, are all susceptible to the effects of extreme heat, drought, and wildfire. Low yields or crop destruction would have severe consequences for people's livelihoods, tourism draws, and the state's overall economy.

Maple sugaring is a particularly important agricultural industry in the Bennington region, with dozens of sugaring operations throughout the region. Although technological advances have made maple sugaring much more efficient and productive, climate change has already impacted the industry in Vermont. The sugaring season has shifted, beginning earlier, and its duration has contracted by about 10%. In addition, it may be more susceptible to disturbance as three warm days with temperatures of 65 to 75ºF can end the season early, as invasive pests gain ground when winter temperatures fail to fall low enough to kill them off, or as trees are put under stress by drought or devastating storm events.[42]

Preventative Steps

Urban Heat Island Mitigation

To reduce the Urban Heat Island effect, municipalities should incorporate green infrastructure into regular street upgrades and public space improvement projects. Increasing trees and vegetation throughout more urbanized areas will help to mitigate the effect of the higher impervious surface coverage.[43] Larger or more urban municipalities in the Bennington region could pursue urban forestry plans, if desired, to strategize increased tree canopy in developed areas on a community-wide scale.

In addition to municipal leadership on tree planting, initiatives like the Vermont Urban & Community Forestry Program provide support for individual households to plant trees and improve natural cooling in their neighborhoods.

Weatherization Programs

Improving indoor cooling capabilities is also an important step to mitigating the impacts of extreme heat, especially for more vulnerable community members. Offering municipal support for more efficient cooling systems, or connecting community

[42] See: Claire Potter, March 6, 2022, Valley News, Climate change is already impacting the maple sugaring industry. and Lexi Krupp, February 9, 2024, Vermont Public, Some maple producers are collecting sap during this warm spell. But it is not a guarantee.
Michael J. Caduto, March 21, 2024, The Barton Chronicle, Maple sugaring adapts to a changing climate.
[43] https://www.epa.gov/green-infrastructure/reduce-urban-heat-island-effect#:~:text=%22Urban%20heat%20islands%22%20occur%20when,heat%2Drelated%20illness%20and%20mortality.

members with non-profit resources, could mean the difference between a safe, comfortable home or a trip to the hospital during a heatwave.

10.5 Planning and Coordinating Response

In the face of increasing climate-related stresses, planning is one of the most crucial steps we can take to mitigate harms and encourage resilience. The BCRC supports hazard mitigation planning and emergency operations planning, working with state and municipal officials to identify risks and prepare for worst-case scenarios. The BCRC also works to coordinate responses to natural disasters when they do occur.

Local Hazard Mitigation Plans

Local hazard mitigation plans identify local hazard issues, prioritize the steps needed to mitigate risk, and provide access to a funding source through the FEMA Flood Mitigation Assistance Program. To be effective, the local hazard mitigation plan must clearly identify and prioritize specific projects. The BCRC has worked with several towns to develop these plans and is available to offer continuing assistance with new and updated hazard mitigation plans. Funding to implement mitigation projects may be available through the Hazard Mitigation Grant Program (HMGP) in Vermont or through other FEMA flood hazard mitigation assistance programs.

Local Emergency Operations Plan

Once a flood or other emergency situation occurs, it is imperative that municipalities have a consistent and reliable system for coordinating response. A Local Emergency Operations Plan (LEOP) is an effective way to coordinate local response and facilitate contact with other towns and agencies. The LEOP provides a list of local names, numbers and assigned roles, resources available in nearby communities and contact information, and provides a framework for coordination with support services available at the state and federal level. The LEOP must be updated annually after Town Meeting Day and a copy submitted to the Vermont Department of Emergency Management and Homeland Security. The BCRC is available to assist with preparation of these documents.

Response

Once damage from an extreme event has occurred, it is important that communities have the capacity to effectively recover. Following through on risk reduction strategies is critical at this stage, as is the ability to effectively access financial and other support from federal and state government agencies. The BCRC has played an important role during the recovery from recent extreme weather events and it is important that its responsibilities are clearly identified and implemented, along with the roles of local leaders and state and federal agencies.

During widespread disasters multiple towns may collaborate, sharing staff,

equipment, and other resources to achieve the most rapid and cost-effective response. The Bennington County Regional Emergency Planning Committee (REMC) provides an ongoing forum for intermunicipal communication and preparedness planning for the Bennington region. Municipalities also can execute formal intermunicipal mutual aid agreements that specify procedures for support service requests, cost sharing, and other issues. Having formal agreements in place will not only assist in the response phase of an emergency, but also can help recover reimbursable costs through FEMA in the event of a federal declaration.

Additionally, the BCRC works with the Vermont Department of Emergency Management and Homeland Security, the Vermont Agency of Transportation, the Vermont Agency of Natural Resources, and the Vermont Agency of Commerce and Community Development during the response to an emergency by serving as a liaison between local governments and state and federal agencies, providing immediate damage reporting and mapping, and helping to staff the State Emergency Operation Center when required.

Funding

Following the immediate response to a natural disaster, communities often are faced with significant costs. Indeed, municipalities are generally the entities that suffer the costliest damage during a disaster. After a federally-declared disaster, qualified losses may be reimbursed through the federal Public Assistance program supplemented by the Vermont Emergency Relief and Assistance Fund (ERAF). Other programs may apply in certain situations, such as the Emergency Relief for Federally Owned Roads (ERFO) program, which provided financial support to the Town of Sunderland covering the multi-million dollar reconstruction of the Kelly Stand Road following Tropical Storm Irene. FEMA's Hazard Mitigation Program also may provide funding to support relocation or elevation of some of the structures located in the floodplain.

The Vermont ERAF program provides state funds to communities after a declared disaster to cover a portion of the cost of repair and restoration work not covered by federal funds. Communities receive a greater amount of state funding if they have taken specific steps to reduce the current risk (an additional five percent for steps 1-4, below, and another five percent for also implementing step 5, below):

1. Participate in the National Flood Insurance Program (NFIP).
2. Adopt road and bridge standards that meet or exceed the 2013 template in the current *VTrans Orange Book: A Handbook for Local Officials*.
3. Adopt a Local Emergency Operations Plan (LEOP) annually after Town Meeting Day and before May 1.
4. Adopt a FEMA- or Vermont Emergency Management-approved Local Hazard Mitigation Plan (LHMP).

5. Adoption of River Corridor Bylaws, or enrollment in the FEMA Community Rating System (CRS).

As of February 2024, only four communities in the Bennington region met the requirements for the highest ERAF rate of 17.5%: North Bennington, Shaftsbury, and Sunderland. Arlington is the only town with a 12.5% rate, and all other municipalities in the region are at the 7.5% rate.

Another source of funds for resiliency activities is the Flood Resilient Communities Fund established by the Vermont legislature in 2021 to improve "landscape and community resilience and [reduce] the future public safety and water quality impacts of climate-related flood hazards in Vermont, focusing on buyouts of flood-vulnerable properties."[44] In the Bennington region, two scoping studies have been funded through the program to evaluate alternatives for reducing flood risks in the alluvial fans of Bourne Brook and Lye Brook in Manchester. The BCRC was instrumental in applying for the funds, managing the scoping studies, and presenting alternatives to the town selectboard.

10.6 Taking Action: Climate Resilience Policies

Flooding

1. The BCRC will work cooperatively with municipalities and the Vermont Agency of Natural Resources to complete and maintain flood and fluvial erosion hazard maps and to identify specific areas of concern that should be targeted for mitigation actions.
2. The BCRC will work cooperatively with municipalities, state and regional agencies, and conservation and watershed organizations to maintain and enhance the ecological integrity of rivers, streams, wetlands, and upland forests.
3. The BCRC will facilitate acquisition by public entities or conservation organizations of critical buffers and land within erosion hazard zones, especially those identified in hazard mitigation and river corridor plans.
4. The BCRC will assist municipalities to maintain up-to-date regulations to limit and control development in flood hazard areas and river corridors. Such regulations are designed to protect property and the health and safety of the population against the hazards of flood inundation and erosive damage that may be incurred when unsuitable development occurs in areas prone to flooding or erosion. New development in special flood hazard areas and fluvial erosion hazard zones should be avoided whenever possible. Any new development that does occur must be designed and sited so as to avoid any increase in flooding or erosion.
5. The BCRC will advocate for municipalities to adopt river corridor standards or to

[44] Flood Resilient Communities Fund | Vermont Emergency Management

require establishment of undisturbed buffers of natural vegetation between rivers, streams, and other waterbodies to maintain water quality and to attenuate overland flow. This buffer should reflect state river corridor mapping or be at least 50 feet wide for streams with minimal potential for lateral or vertical adjustment and 100 feet wide for streams with significant potential for such adjustment.

6. The BCRC will advocate that municipalities adopt the most recent Orange Book standards for municipal roads and bridges. Bridge and culvert repairs and replacements should be designed based on hydraulic studies to avoid constrictions that would accelerate flow and cause damage to public infrastructure and private property.
7. The BCRC will facilitate reconstruction or replacement of existing local and state bridges and culverts that would impede flow during flooding events as part of regular scheduled maintenance or through special hazard mitigation initiatives.
8. The BCRC will provide education and outreach to municipalities and property owners within flood zones to encourage flood-proofing or buy-outs of structures subject to repeated flooding and eligible for funding under the FEMA hazard mitigation grant program.
9. The BCRC will recommend municipalities participate in FEMA's Community Rating System program and assist municipalities to implement standards that will lead to rate reductions in flood insurance premiums for residents and businesses.
10. The BCRC will assist municipalities to encourage or require owners of property in flood hazard zones to secure propane tanks, firewood, boats, and other items that could float away in a flood, thereby creating hazards for people, property, and infrastructure downstream.

Extreme Heat and Drought

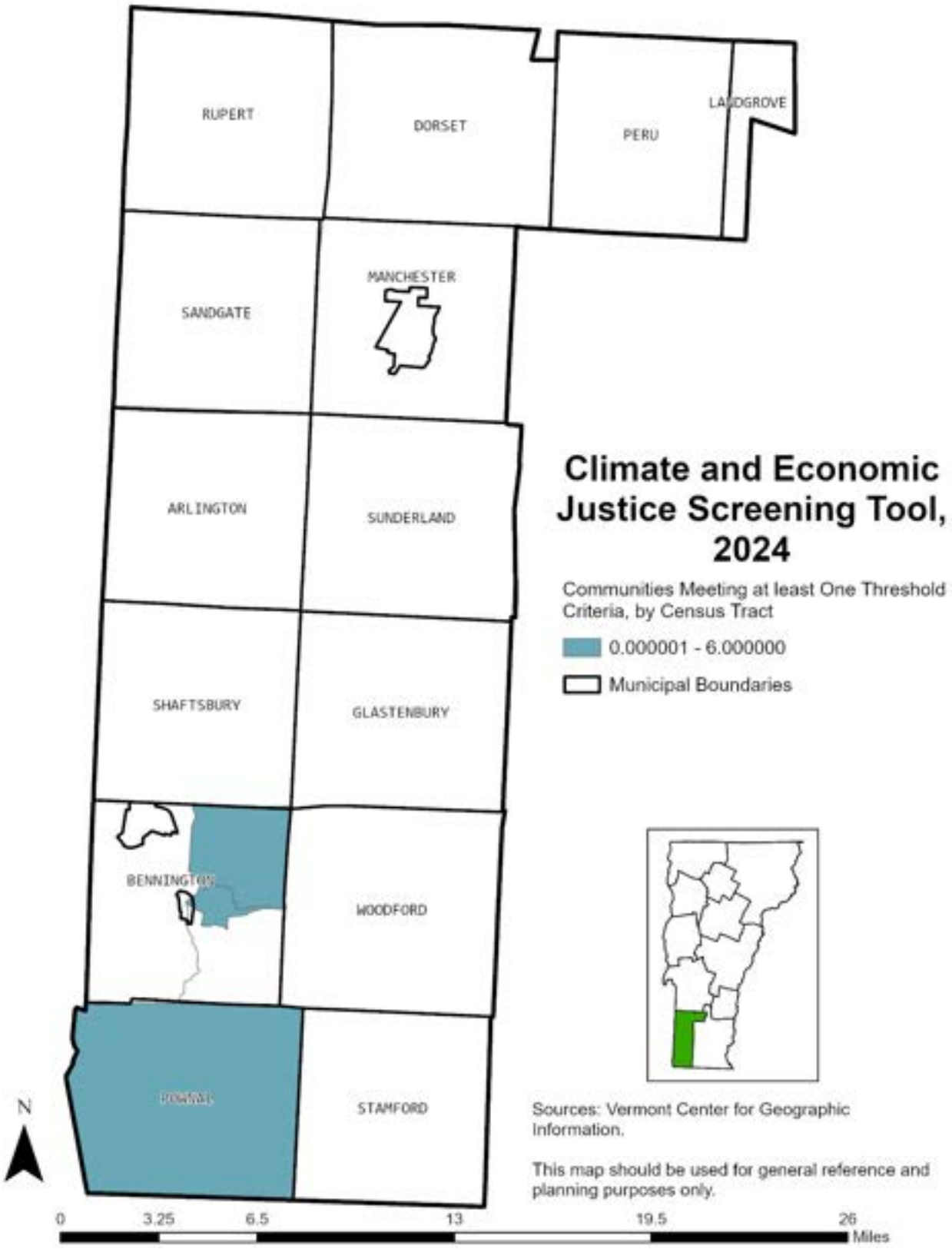
1. The BCRC will track state heat and drought warning systems and work cooperatively with municipalities to implement mitigating measures that are within municipal control. This could involve boosting anti-poverty social services, supporting public health programs addressing chronic health conditions (such as diabetes, asthma, hypertension, and obesity), and improving environmental mitigating factors (such as increasing tree canopy, decreasing impervious surfaces, and increasing housing availability).
2. The BCRC will seek to study urban tree canopy in the region's downtowns and villages centers, especially with an eye toward equity. Based on study results, pursue tree planting in downtown and village areas with canopy gaps that contribute to inequitable heat island effect.
3. The BCRC will assist municipalities to provide adequate shade coverage and

water sources at outdoor public facilities such as parks, playgrounds, and public transit stops.

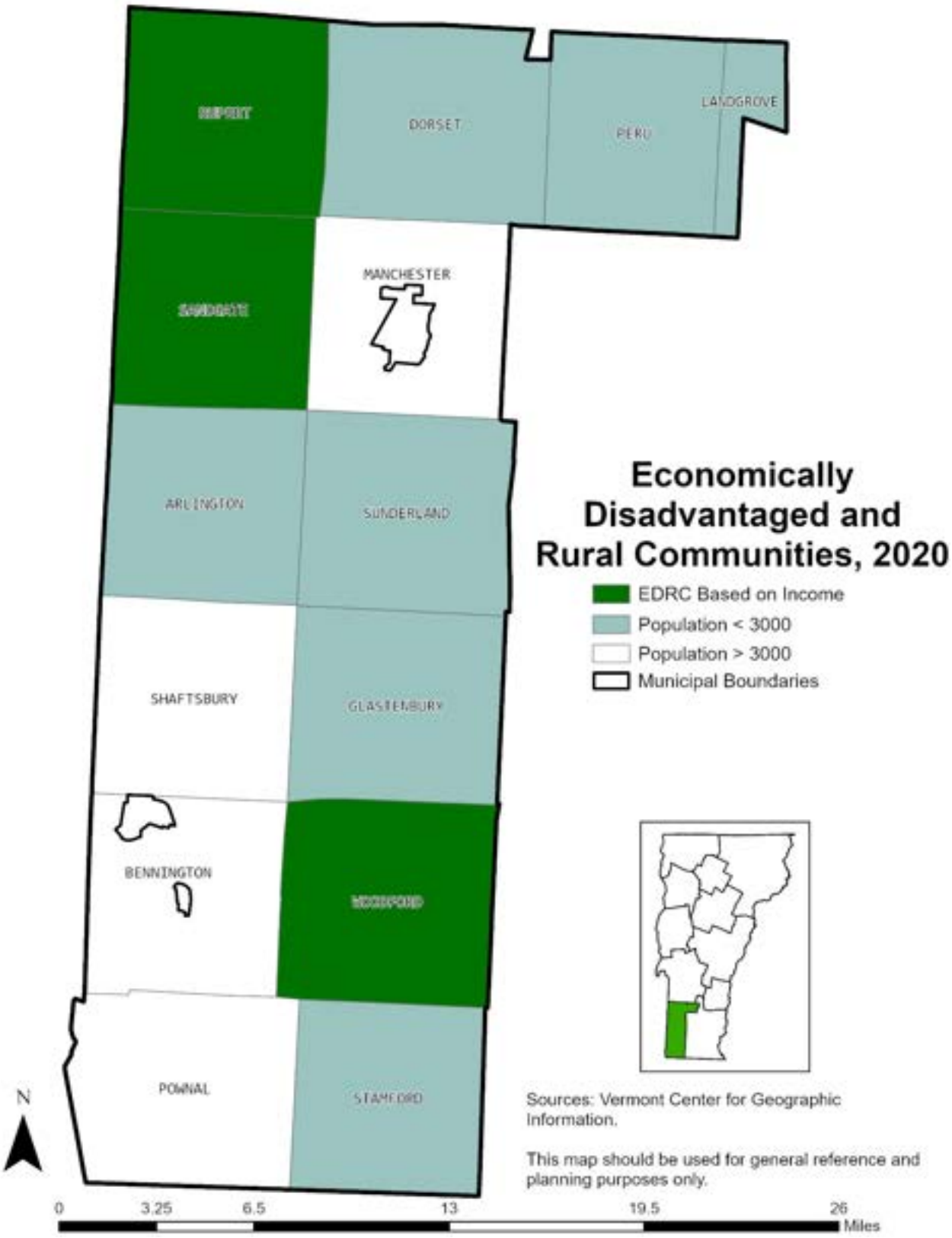
Planning and Funding

4. The BCRC will encourage and assist municipalities to meet requirements of the Emergency Relief and Assistance Fund (ERAF).
5. The BCRC will encourage municipalities to maintain Hazard Mitigation Plans. HMPs help municipalities qualify for more funds after a disaster through ERAF and allow municipalities to become eligible for FEMA grant assistance. The BCRC will assist municipalities to complete grant applications under the Hazard Mitigation Funding Program and will respond to municipal RFPs to develop HMPs.
6. The BCRC will facilitate municipalities to maintain and submit Local Emergency Management Plans (LEMP) for emergency response and hazard preparedness. Updated or readopted LEMPs are due to Vermont Emergency Management by May 1st each year.
7. The BCRC will facilitate participation by municipal representatives at all Regional Emergency Management Committee (REMC) meetings.
8. The BCRC will encourage municipal leaders to assess their community's risk by reviewing the Community Report section on the Flood Ready website.
9. The BCRC will facilitate attendance by municipal leaders at Incident Command System (ICS) trainings, Emergency Management Director (EMD) trainings, National Incident Management System (NIMS) trainings, and other necessary trainings listed on the Vermont Learning Management System.
10. The BCRC will assist municipal leaders to encourage community members to sign up for Vermont Alert to receive emergency alerts by text, email, or phone call.
11. The BCRC will assist municipalities to provide emergency information on municipal websites, such as shelter information, weather alerts, and how to make an emergency kit.
12. The BCRC will work to provide additional support to Economically Disadvantaged and Rural Communities (EDRCs).

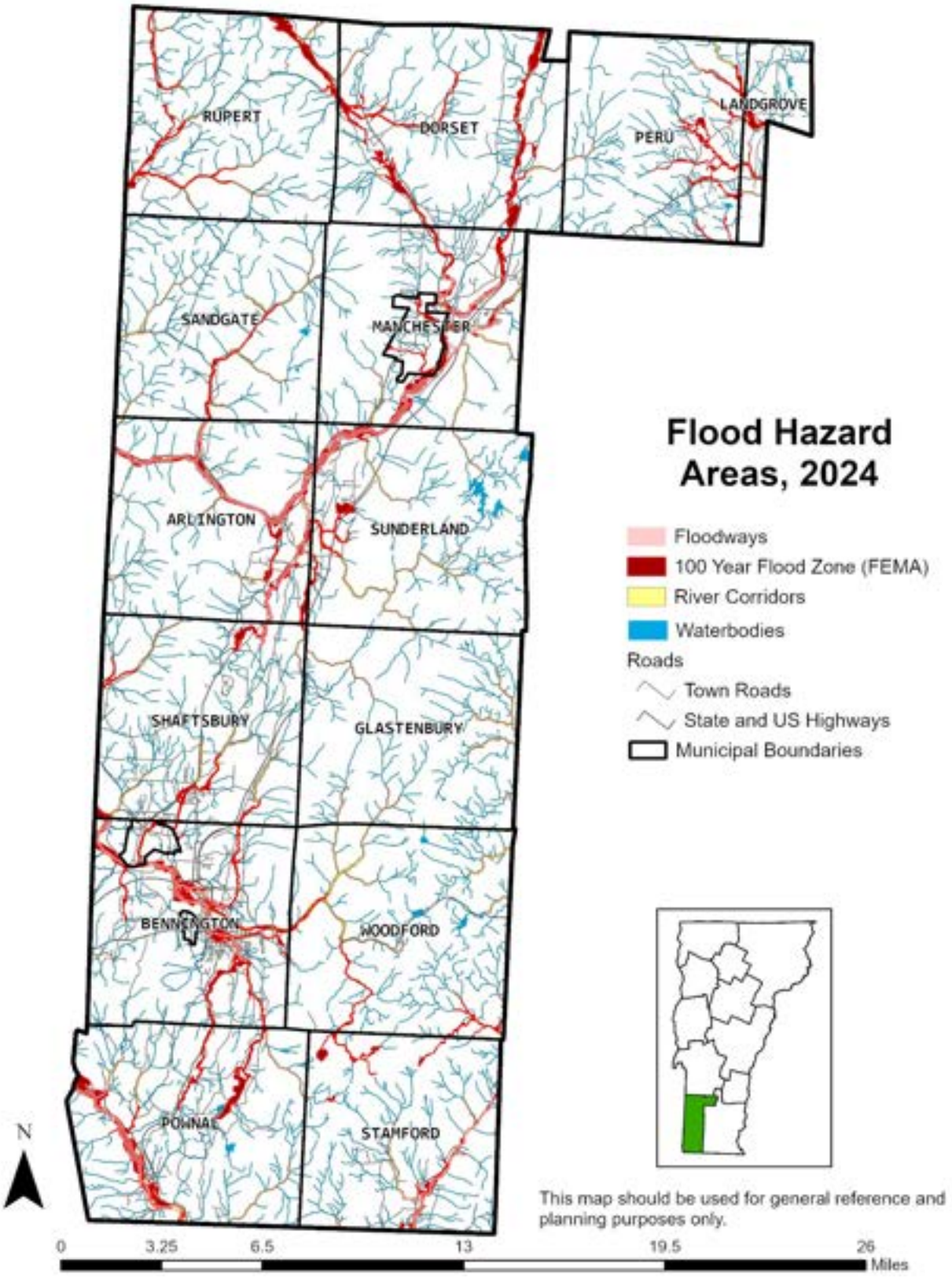
Map 10-1. Disadvantaged Communities in the Bennington Region, Climate and Economic Justice Screening Tool.



Map 10-2. Economically Disadvantaged and Rural Communities in the Bennington Region.



Map 10-3. Flood Hazard Areas and River Corridors in the Bennington Region.



Map 10-4. Wildfire Risk in Bennington County and the Surrounding Area.



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11 TRANSPORTATION

11.1 Overview

Safe, convenient, and economical transportation is essential to the people and economy of the Bennington region. A variety of transportation modes exist in the region. A network of town and state roads and bridges serves through traffic, provides access to residential properties, and supports the area's commercial and industrial businesses. The Vermont Railway traverses the region from North Bennington to Dorset and a busy freight corridor runs along the Hoosic River in Pownal. The W.H. Morse State Airport in Bennington provides facilities for light aircraft. The Green Mountain Community Network operates local fixed-route and commuter bus service, and an intercity bus service connects stops in the region with points north and west. Pedestrians and bicyclists use roadways and the sidewalks and pathways found in and near downtowns, village centers, and residential neighborhoods. Each element of the region's transportation infrastructure will be discussed in this chapter, with an emphasis on support for regional development goals. This plan also will identify current transportation improvements.

An understanding of how transportation is related to regional land use, public health, energy, environmental quality, and economic development objectives is fundamental to this plan. While it is critical that transportation infrastructure provides safe and convenient access for residents and businesses, it is equally important to ensure that the underlying land use pattern supports and encourages efficiency and the use of alternative modes of transportation. Growth concentrated in compact urban and village centers facilitates efficient transportation.

11.2 Highway System

The purpose of the region's network of roads and bridges is to provide for the safe and efficient movement of people and goods, supporting healthy communities, and structuring future growth and development (see Map11-1). There are over 650 miles of state and local roads in the region (Table 11-1). The principal north-south travel route through the region is provided by Routes 7 And 7A. Six state highways branch off from this central corridor and provide access to rural areas and village centers to the east and west. Town maintained road networks serve urban and village centers as well as lower-density and rural areas in the valleys. Except for a few minor roads (often extending into unmaintained public rights-of-way and legal trails) that follow streams up into mountain hollows and some US Forest Service roads, there are no public roadways in the region's mountainous upland areas. Privately owned and maintained roads in the lowland areas exist primarily to serve individual residential developments. Private logging roads provide access into some upland forest areas for forest resource and

some utility and recreational activities, while a private toll road to the summit of Mount Equinox is a seasonal tourist attraction.

Table 11-1. Bennington Region Municipal and State Highway Mileage
Source: Vermont Agency of Transportation, 2023 Mileage Certificates

Municipality	Municipal Highways				State Highways	Total *
	Class 1	Class 2	Class 3	Class 4 and Legal Trails		
Arlington	0	7.91	26.77	7.27	14.05	48.73
Bennington	3.58	12.23	83.85	5.57	28.19	127.85
North Bennington Village	1.61	0.08	7.97	0	0.47	10.13
Old Bennington Village	0.58	1.49	0.98	0.29	0	3.05
Dorset	0	13.85	24.57	8.64	13.67	52.09
Glastenbury	0	0	1.61	1.50	1.78	3.39
Landgrove	0	4.82	9.55	1.33	0.82	15.19
Manchester	4.73	15.65	23.37	7.41	16.60	60.35
Manchester Village	2.13	3.30	3.71	0	0	9.14
Peru	0	6.18	16.11	5.86	4.63	26.92
Pownal	0	11.85	51.59	9.27	12.62	76.06
Rupert	0	13.18	28.15	5.91	3.83	45.16
Sandgate	0	7.58	18.67	7.48	0	26.25
Shaftsbury	0	19.99	50.44	5.05	15.85	86.28
Stamford	0	3.50	14.02	9.83	5.75	23.27
Sunderland	0	15.17	13.95	1.68	11.37	40.49
Woodford	0	0	2.50	7.70	9.58	12.08
Totals	**12.63**	**136.78**	**377.81**	**84.79**	**139.21**	**666.42**

* Highways open to automobile travel (excludes Class 4 municipal highways and legal trails)

The region's road system should be planned and managed to achieve specific important objectives. Investments should focus primarily on existing roads, with an emphasis on safety improvements, minimization of long-term maintenance costs, and support for development in villages, urban centers, and planned growth areas. Any new road construction should be planned to meet these same goals. A critical objective applying to all road construction and maintenance projects is the provision of spaces that promote public health through adherence to "Complete Streets" principles. The complete streets approach acknowledges that roadways exist for a variety of user groups: pedestrians, bicyclists, and public transit riders, as well as for cars and trucks. Ensuring that roads are safe and accessible for all these groups will promote physical activity and health, reduce reliance on fossil fuels, and facilitate the development of the

compact mixed-use centers that form the basis for the regional land use plan.

Roadway construction and maintenance projects also should be planned to avoid environmental damage, minimize pollution from stormwater runoff, and to withstand severe flooding events. Moreover, roads need to be appreciated as important public spaces, being places where, as motorists, pedestrians, or cyclists, we observe much of our landscape and interact with each other. It is important, therefore, that roadways be as attractive as possible, preserving scenic views, mature street trees, and in village and downtown centers especially, providing amenities such as wide sidewalks, benches, landscaping, and pedestrian-scale lighting.

Highway Classification

Roadways traditionally are organized into four categories, each serving a different primary function. **Expressways**, or limited access highways, are designed to carry through traffic between destinations with sufficient capacity that traffic along the roadway never stops moving. These roadways can be accessed only at interchanges, and direct access between the highway and adjacent land is not permitted. US Route 7 between the center of Bennington and East Dorset and Vermont Route 279, connecting VT Route 9 east and west of Bennington, are the region's two expressways. A total of seven interchanges are located along these highways in Bennington, Sunderland, Manchester, and East Dorset. These roadways provide a convenient and scenic route for through travelers and remove some disruptive truck traffic from downtowns, village centers, and residential neighborhoods. A state welcome center was constructed at the intersection of US 7 and Vermont 279 to provide information about the area to travelers.

Development is limited along expressways because of access restrictions, but it is important for municipalities to give special attention to access and related land use issues near interchanges. Any development in these areas should be carefully planned to discourage unsafe speeds and turning movements, as well as the kind of sprawling development that could be detrimental to the vitality of established downtowns and commercial centers. It also is vitally important to make sure that safe travel ways and crossings for pedestrians and bicyclists are available in these areas. In many cases, the expressways were constructed without consideration of these other users of the transportation system, and retrofits to improve accessibility and safety are required. For example, a pathway and crosswalk along Kocher Drive in Bennington was constructed in 2019 to provide a safe crossing at the US 7 interchange.

Arterial highways provide principal travel routes between and across villages and urban centers. Arterials usually are state highways where direct access to adjacent properties is possible, subject to control over the location and design of entrance and exit drives (the BCRC Access Management Study for the VT 67A corridor provides a good overview of these issues). These roadways often connect to interchanges and provide access to secondary state highways and some local roads. VT Routes 9, 11,

30, 67A, and US 7 (north and south of the limited access portion of the highway) are the arterial highways in the region.

Arterial highways should be constructed and maintained in accordance with the Vermont State Design Standards and include important elements such as shoulders of sufficient width to accommodate bicycle travel, climbing lanes in areas of steep grades, and traffic calming (*i.e.*, reducing automobile speeds and volume to improve non motorist safety and mobility - discussed further below) and gateway treatments at the entrance to villages centers, downtowns, and other areas of relatively high-density development. It is particularly important to note that these arterials should change in function and character when they pass through downtowns and village centers. In some of these places, the highways become Class 1 municipal highways while in others they remain under the state's jurisdiction. Pedestrians, bicyclists, buses, and parked cars are common in these compact centers, and the arterials often form the center of an historic main street. Narrower roadway width, sidewalks, crosswalks, street trees, and restricted turning radii are acceptable and appropriate along arterials that are in community centers. Through flow of vehicle traffic should be slowed to promote safety and support a human-scale environment.

In areas outside of community centers, access controls are important to ensure safety and the function of the arterial. Residential developments should be designed to avoid direct access to the highway from individual streets. Any commercial developments along arterials should avoid excessive driveway widths and have a limited number of access points while providing adequate sight distances for drivers and areas for acceleration and deceleration as appropriate. Local subdivision and zoning regulations can supplement any state review and approval of new access points along these highways.

Collector roads provide connections between arterial highways and local streets and allow for direct access to adjacent properties. State highways such as Routes 346, 100, 313, 7A, 153, and 67 are all classified as collectors. Construction and rehabilitation projects should attempt to bring these roads into conformance with the Vermont State Design Standards. In addition, many collector highways serve as important bicycle corridors so adequate provision should be made for safe use by bicyclists. As with arterials, when collectors enter downtowns, village centers, and other areas of compact development, traffic calming measures should be employed to reduce vehicle speeds and promote safety, while streetscape design should be consistent with surrounding historic and human-scale development.

Local streets provide direct access to adjacent land uses. Access takes precedence over traffic flow on these streets and vehicle speeds tend to be low. In relatively densely developed areas such as downtowns and other commercial centers and residential neighborhoods, sidewalk networks are particularly important. Whenever

possible, local streets should form a connected network, providing various routes for traffic through a community. In some instances, movements of through traffic on these roadways may be accompanied by excessive vehicle speeds so traffic calming methods should be employed as necessary.

Traffic Calming

Traffic calming involves the use of physical changes in the roadway to reduce vehicle speeds. In urban and village areas, these techniques can safely balance the needs of motorists, bicyclists, and pedestrians. Traffic calming promotes safety while creating opportunities to enhance the aesthetic and environmental elements of roadway corridors by reducing pavement width and increasing landscaping. A wide range of traffic calming techniques are available. Some of the most common techniques are:

- Installation of roundabouts at intersections, particularly at “gateways” to downtown or village center areas.
- Reduction of the motor vehicle travel lane width in village areas;
- Center islands and pedestrian refuges at crossing locations in roadways and raised and/or textured crosswalks.
- Vertical deflection, which includes speed tables, speed humps, and traffic calming roundabouts.
- Horizontal deflection, which includes chicanes, and lateral shifts;
- Bulb-outs at crosswalks.
- On-street parking.
- Pavement markings.
- Enforcement, especially a visible enforcement presence.

Access Management

Access management concerns the relationship between the roadway network and adjacent land uses. The highway system needs to provide for safe and efficient through traffic movement as well as access to residences, businesses, and other uses located along the roadways. Those two functions often come into conflict, and access management is a set of principles and tools that can be used to minimize those conflicts. The Vermont Agency of Transportation maintains access management resources on its website. Specific benefits of access management planning include:

- Improved traffic flow by decreasing delays and occurrences of vehicle blockages.
- Improved vehicular and pedestrian safety by eliminating conflict points.
- Support for economic development through improved access.
- Support for local land use plans.
- Improved aesthetics and community character by incorporating landscaping sidewalks, and lighting into the design of intersections and driveways.

The Vermont Agency of Transportation has worked with the regional planning commissions to assign access management categories to state highways and has developed techniques appropriate for each type of highway. Application of those techniques is guided by the following principles:

- Provide a specialized roadway system based upon mobility for through traffic and access to adjacent land.
- Provide appropriate intersection design, control, and spacing to provide efficient transitions from one roadway classification to another.
- Limit direct access between land uses and higher speed roads while promoting access between land uses and minor, low speed roads.
- Limit or separate the number of conflict points between traffic entering and exiting driveways and streets.
- Remove turning traffic from through traffic lanes.
- Provide safe and efficient pedestrian and bicycle movements.
- Appropriate access management elements shall be included in any roadway construction or reconstruction project and municipalities should require applicants for land use permits to include access management principles in their development site planning.

A wide range of regulatory options can be used by municipalities to maintain or improve access management conditions. The most basic methods involve zoning controls over the location, type, and intensity of development. Site plans for new developments or redevelopment of existing properties should include appropriate site-specific access management options, which may include:

- Limiting the number, width, spacing, and alignment of curb cuts (which may involve closing or relocating existing curb cuts).
- Requiring connections between adjacent lots for both vehicles and pedestrians.
- Restricting parking to the side or rear of buildings.
- Constructing sidewalks and other pedestrian amenities between streets and storefronts and between adjacent stores and commercial properties.
- Providing safe access routes for bicycles and racks for bicycle storage.
- Allowing for planned unit developments and requiring submission of master plans to account for future parking and access needs.
- Requiring access drives to intersect existing side roads or new subdivision or service roads rather than on principal through roadways.
- Planning roadway connections to adjacent developments and discouraging dead-end roads.
- Requiring traffic impact studies, paid for by the developer, for large-scale new projects as well as construction of necessary improvements identified in those

studies.

Parking

Safe, convenient, and attractive vehicle parking areas are a necessary component of the transportation system. In many areas, adequate parking can be provided through on-site facilities. The location of these parking lots on a site and the layout and design of the lots are important to their proper functioning and to the aesthetic values of a community.

Parking areas should be well-landscaped and placed at the side or rear of lots to ensure that a sea of asphalt and vehicles are not prominently visible from public roads. Parking lots should include sidewalk linkages that provide for safe pedestrian movements to and through these areas. Landscaped islands and borders improve aesthetics, provide shade, and allow for infiltration of stormwater runoff. It is important that parking lots provide adequate space for the number of vehicles that typically use the site, but lots with excessive parking spaces are not appropriate.

Because of space limitations and the importance of maintaining a compact development pattern, on-site parking often is not available or appropriate in downtowns or village centers. On-street parking may provide a significant amount of vehicle storage in these areas while also calming traffic. Public parking lots and parking garages should be located behind, but convenient to, main business streets. Those public parking facilities should include the same design elements as on-site private lots as well as clear and attractive sidewalk or pathway connections to commercial and residential destinations. If sufficient public parking is developed in downtowns and village centers, it may be possible to eliminate some on-street parking and expand sidewalks and adjacent areas for additional public spaces that could be available for enhanced landscaping, outdoor dining, art displays, sitting areas, and similar uses. Properly sited and planned public park-and-ride lots help to encourage carpooling; such parking facilities should include features like those described above.

Scenic Roads and Historic Bridges

The region’s landscape is most often viewed from its public places, and the most visited public places in a community are its roads. As such, public highways are extremely important to the region’s overall scenic character. Key points along principal highway corridors serve as important visual gateways to villages and other historic areas. Roadways also provide visual access to near and distant scenic views. Of course, roads can be scenic features in and of themselves: a winding country lane lined by a stone wall and a village street passing under a canopy of mature trees are distinctive scenic resources.

While many, or most, of the roads in the region can be considered scenic, several characteristics clearly contribute to the aesthetic appeal of a roadway. In

general, narrow local roads that blend harmoniously with the surrounding countryside are more scenic than wide roads that don't follow natural or historic elements of the landscape. Landscape features adjacent to a roadway become part of the road corridor: without stone walls, fence lines, trees, and similar elements, the overall scenic value of a roadway can be greatly diminished. Some scenic roads also draw the traveler's eye along the centerline of the road to a unique view or distinctive landscape feature in the distance.

These roadside views are often as important as the scenic character of the road. Some local roads offer delightful forays into deep forests while others bring motorists, bicyclists, and other travelers to views of fields, farms, mountains, or historic buildings. In these instances, scenic viewpoints are open to the principal view and are not blocked or disrupted by incompatible structures or other objects in the foreground. At the same time, an attractive foreground can greatly enhance roadside views.

Municipalities can formally designate local scenic roads and adopt ordinances to protect their character by requiring special consideration before the roadway dimensions, surface, or roadside vegetation located within the public right-of-way are changed. New developments in areas served by scenic roads should be planned to minimize heavy use of those roads that would lead to subsequent demands for widening or other changes to the roads. In addition to any locally established scenic roadways, the region's three state-designated scenic byways are important economic assets for local communities. Continued cooperation between the BCRC, local governments, and state agencies will ensure that these scenic state highway corridors will continue to be important regional resources.

Historic bridges are particularly important components of the region's transportation system. There are five historic covered bridges in the region. The Silk, Paper Mill, and Henry bridges cross the Walloomsac River in Bennington, the Chiselville bridge in Sunderland sits high above the Roaring Branch, and the West Arlington covered bridge spans the Batten Kill in a particularly scenic setting just off Route 313. In addition, two historic truss bridges cross the Batten Kill, one in Arlington at Benedict Crossing and another in Sunderland restored as a pedestrian bridge at a state fishing access site as part of the Vermont Historic Bridge Program. The bridge preservation initiative is a cooperative effort among the Vermont Agency of Transportation, the Vermont Agency of Natural Resources, the Federal Highway Administration, the State Historic Preservation Office, and the Advisory Council on Historic Preservation. The program is designed to work in partnership with towns and villages to preserve historic bridges, either for continued highway use or for some other public use. The program maintains an inventory and resource guide for historic covered and truss bridges, including active bridges and bridges in storage, and can aid with education and development of preservation plans and documents.

Highway and Bridge Maintenance and Improvement

Effective maintenance of the network of state and local highways and bridges is critical for public health and safety and to the vibrancy of the regional economy. These maintenance activities also represent some of the most substantial expenses faced by state and local governments. The Vermont Agency of Transportation uses several tools to prioritize highway maintenance and improvement needs. All state roads and state and local bridges are assigned a sufficiency rating that considers structural conditions, safety, and service criteria. The Agency also maintains a list of high crash locations that, based on crash history, identifies sites where safety improvements probably are needed. Several tools that can help prioritize local road maintenance and improvement needs, such as the Road Surface Management System (RSMS) are available for use by municipal highway departments.

The Agency of Transportation, in an effort to ensure that the state highway system is maintained at an acceptable level and within fiscal constraints, has developed a "level of improvement" (LOI) policy as part of its project development process. The extent of maintenance work targeted to a particular roadway falls into one of three categories based on the functional class (i.e., expressway, major/minor arterial, major/urban collector), total vehicle traffic, and truck traffic. The most extensive maintenance level is *reconstruction,* projects that will bring the highway or bridge into compliance with the state design standards and may increase capacity. Intermediate maintenance treatments are classified as *rehabilitation* projects and are intended to extend the service life of the facility while limiting work to areas within the existing roadway. *Preservation* projects involve the least extensive maintenance work at the lowest cost and are designed to preserve the service life of a roadway or bridge.

In addition to considering RSMS or other empirical data, municipalities should consider several other key factors when undertaking highway infrastructure maintenance. Each municipality should adopt the most current codes and standards (as detailed in the Agency of Transportation's The Orange Book) for local highways. These standards are designed to help towns and villages save money by minimizing the need for extensive and costly repairs, especially repairs resulting from damage caused during heavy rain and flooding events. Additional benefits of adopting and adhering to the codes and standards include eligibility for assistance under the Federal Emergency Management's Public Assistance Program, reduced local match and higher state reimbursements, and improved water quality.

Of course, safety is the most important consideration in highway maintenance and improvement projects. The Agency of Transportation's Strategic Highway Safety Plan is intended to correct roadway hazards and enhance public safety. As part of the statewide safety enhancement effort, the BCRC works with the Agency of Transportation and with local officials to identify and implement safety improvement

projects through annual road safety audit reviews.

Highway System Improvement Priorities

Highway system improvements include roadway and bridge projects identified on the network of state highways. Many of the highway projects identified in this section also include significant pedestrian or bicycle improvements and may, therefore, also be mentioned in Section 11.6 of this plan. Specific improvements on local highways are not included in this plan, but municipalities should maintain lists of priority construction and maintenance needs and consider integration of the proposed projects in comprehensive capital budgets and programs. A variety of program areas and funding sources are available for implementation of these projects. The BCRC will work with the Agency of Transportation and local officials to advance the projects using the most financially advantageous and expeditious methods. The list of current state highway system improvement priorities within the Bennington region includes:

1. Northside Drive/Kocher Drive Corridor Improvements (Bennington): Access management, roundabouts, sidewalks, landscaping, and installation of a stormwater system. One roundabout was constructed as part of the redevelopment of a commercial plaza.
2. VT 67A/Silk Road/Mattison Road/Bennington College Road (Bennington): A planned roundabout would address safety and traffic operation issues.
3. Monument Avenue Traffic Calming (Bennington and Old Bennington): Implementation of planned traffic calming measures along this corridor which is used by many people as an informal bypass route.
4. Intersection of Warm Brook Road and VT 313 (Arlington): A roundabout project selected by the BCRC Transportation Advisory Committee (TAC) as part of the VPSP2 project prioritization process.
5. VT 313/River Road Intersection at “Rochester’s Corner” (Arlington): Traffic safety improvements at this intersection are needed because of poor sight distance.
6. VT 7A (Shaftsbury): Access management, traffic calming and pedestrian crossing/safety improvements in South Shaftsbury Village, especially in the area where children cross the highway to get to the local elementary school.
7. VT 7A (Arlington): Pedestrian route and crossing between the village center and the town recreation park.
8. VT 7A (South Shaftsbury to Warm Brook Road in Arlington): Improved shoulders for bicycling are needed as this is the only paved road open to bicycles connecting Shaftsbury and Arlington.
9. VT 30 (Dorset): Traffic calming and pedestrian improvements in the Dorset

Village area.

10. US 7 (Dorset): Traffic calming and a crosswalk in East Dorset Village.

11.3 Public Transportation

Operation of public transportation services in a rural area like the Bennington region is challenging because of the relatively small and dispersed population. Nonetheless, public transportation is an important service in the region that will grow increasingly critical over time. The region's public transit routes are shown in Map 11-2. The system provides accessibility to segments of the population that traditionally have less car access, including elderly residents, students, and people with disabilities, and encourages less dependence on private motor vehicles among the general population. Greater utilization of public transportation will reduce vehicle miles traveled, roadway congestion, and air pollution. Moreover, it has been shown that regular transit users are more likely to be physically active and healthy, as such trips generally involve some amount of walking to and from bus stops. Many buses are equipped with bicycle racks, allowing commuters to cycle to and from the bus stops.

The Green Mountain Community Network (GMCN) operates the Green Mountain Express transit service, providing a range of fixed routes, deviated fixed routes, and demand response services. A fixed route service running between Bennington and Manchester along Route 7A, with stops in Shaftsbury, Arlington, and Manchester Village, provides a valuable commuter link for many workers. Connections can be made in Manchester for continued service to Rutland. GMCN also operates a daily service (Monday thru Friday) to Williamstown, Massachusetts, and service (also Monday thru Friday) to Wilmington, where connections can be made to Brattleboro. Bennington and Manchester are stops on an intercity bus linking Burlington with Albany, NY with stops at Albany/Rensselaer Amtrak Station, the Albany Bus Terminal, and the Albany International Airport.

A weakness of the region's transit service is the lack of options for travel to Boston. The region once had direct bus service to Boston, but no longer. Amtrak has service to Boston from Pittsfield, Massachusetts, 33 miles south of Bennington, however, to get Pittsfield from Bennington requires taking four different buses which takes nearly three hours. Also, the GMCN bus does not run on weekends.

Fixed route services provided by GMCN on Green Mountain Express buses in the Bennington region operate Monday thru Friday with stops downtown at residential developments, shopping centers, medical facilities, job sites, schools, colleges, and other important local destinations. An extra fixed route operates on Saturdays, emphasizing service between residential areas, shopping, colleges, and entertainment venues. It is important to continually monitor these services to be sure that the destinations and times match local needs. As discussed earlier in this plan, better connections between the area's colleges and Bennington's downtown will prove

beneficial to students, businesses, and the community. Every effort should be made to ensure that these connections are as convenient and accessible as possible.

The GMCN also works with volunteer drivers to provide door-to-door transportation to and from medical appointments, and special trips for elders, nursing home residents, and people with disabilities. Other human service agencies in the region maintain their own vans to provide similar services for their clientele. These services are important to the people served and these organizations should work cooperatively to ensure that these populations' transit needs are adequately addressed.

Not to be overlooked are the valuable public transportation services provided by the region's school districts, most of which operate buses that safely and efficiently transport children to and from school. Use of school buses rather than relying on individual cars encourages more physical activity and can dramatically reduce gasoline consumption and related regional energy expenditures.

Another form of public transportation involves ridesharing, or carpooling, either during a work commute or for any other purpose. Go! Vermont is a resource for people who want to reduce the cost and environmental impact of driving. Free carpool matching and vanpool services can be accessed through the website along with information on bicycle commuting and other transportation alternatives.

Priorities for Public Transportation Improvements

1. Evaluate the potential for increasing frequency and extending service hours for the GMCN fixed routes. Monitor use and identify new service needs and opportunities.
2. At bus stops, install "Bus Stop" signs and post the route and schedule.
3. Shelters at bus stops.
4. Improved bus connection to the Pittsfield Amtrak station with service to Boston.
5. Protected bicycle parking at key bus stops.
6. Improved pedestrian connections to bus stops and stations.
7. Improved transportation-related coordination between human service agencies.

11.4 Rail Service

The Bennington region is home to two railway corridors (see Map 11-1). A state-owned rail line enters the region from New York near North Bennington and continues north through the region, eventually reaching Burlington. A spur line, most of which is inactive, runs from the North Bennington depot (currently housing the North Bennington Village offices) to downtown Bennington. Both rail lines are leased by the state to

Vermont Railway. Freight shipments along the main Vermont Railway line have increased in recent years in response to track improvements along the corridor. In addition to bulk products such as grain and feed, propane, and lumber that have been shipped to and from local businesses for many years, the line now sees considerable freight business originating from the OMYA calcium carbonate businesses north of Rutland. The CSX Corporation owns the rail line that passes through Pownal along the Hoosic River valley. That line connects to major rail hubs in Mechanicville, New York and Lowell, Massachusetts. The line is one of the most heavily used freight corridors in Vermont, although it does not currently provide direct service for any local businesses.

Although not currently a heavily utilized part of the region's transportation infrastructure, these rail lines do serve a valuable purpose for certain businesses, and the potential for expanded freight shipments as well as intercity passenger service is very significant. Increasing costs for truck shipments of freight and the high cost, inconvenience, and inefficiency of travel by car and airlines may make rail a competitive option for many freight and passenger routes. Increased reliance of trains for transport of goods and people also would reduce air pollution, traffic congestion, and highway maintenance costs.

An expanded freight service would be more viable with establishment of a transloading facility, where transfers between long haul rail cars and trucks for local and regional delivery could be efficiently accomplished. Fortunately, the region's two rail lines pass by many commercial and industrial sites available for such a facility or for new businesses development that could be served by direct rail shipments.

The potential for renewed passenger rail service to the region has been studied extensively. In 2014, the New York—Vermont Bi-State Passenger Rail Study, sponsored by the two states and overseen by the Vermont Agency of Transportation and a steering committee consisting of representatives from the BCRC and other regional organizations, completed the planning, environmental assessments, and preliminary engineering needed to advance a passenger rail project that would serve the Bennington region. Although federal funding for the project is not available now, the BCRC should work with local partners to urge the state, through the Rail Council, to make this project a top priority for implementation. Initial construction cost is projected to exceed $110 million with annual operating subsidies of several million dollars.

The Bennington region is ideally located to benefit from greater access to intercity passenger rail service. It is the closest part of Vermont to major rail-oriented urban markets, including New York City. The busy Albany-Rensselaer Amtrak station is 40 miles from Bennington, and, more so than any other location in Vermont, travel times and costs are competitive with other transportation modes. Greater access to intercity passenger rail service would not only benefit residents, but it would also be a tremendous economic development benefit for the entire region. Several million people

in the mid-Atlantic metropolitan corridor rely on trains as their primary means of transportation, and having stops in North Bennington and Manchester would immediately strengthen the regional tourism market. In addition, many people who conduct business in those metropolitan areas would be more likely to live in the Bennington region, working from local offices and traveling into New York or other cities as needed for business.

Rail Improvement Priorities

1. Improve connectivity with intercity passenger rail service with a long-term goal of new Amtrak train service to the region.
2. Identify potential commercial and industrial sites that have access to rail to serve new business and a transloading facility.
3. Before initiating more frequent and higher speed rail service to the region, upgrade all road crossings to ensure recommended safety standards are met.

11.5 Air Travel

Access to air transportation is important to area residents and businesses. The William H. Morse State Airport is the only active airfield in the region. It is located north of Route 9, off Walloomsac Road, on the west side of Bennington. One 3,704-foot-long asphalt runway serves aircraft operations. The market area for the airport extends from Pownal in the south to the Bromley and Stratton Mountain resort areas in the north and into nearby towns in New York State. Although there is no commercial passenger or freight operator based at the airport, it is an important general aviation center and is used frequently for business travel. A number of capital projects designed to improve safety and operational efficiency have been implemented at the airport.

The nearest access to commercial air passenger service is available at Albany, New York; Hartford, Connecticut; Lebanon and Manchester, New Hampshire; and Rutland, Vermont. The short drive to Rutland from the northern part of the region makes use of that facility particularly convenient, especially for trips to Boston or destinations with direct connections from Boston (commercial flights connect Rutland with Logan International Airport). The Albany International Airport is within an hour's drive of most of the region's population, and one intercity bus line that serves the region provides service to that airport as well. It is important to ensure that ground transportation connections to the regional airports are well-maintained and that public transit connections, at least to the Albany International Airport and the Rutland State Airport are available and timed to be convenient for air travelers.

Air Travel Priorities

1. Keep the William H. Morse State airport in a state of good repair.
2. Improve ground transportation connections to Albany International Airport and

the Rutland State Airport.

11.6 Walking and Bicycling

Walking and bicycling are important transportation modes that are efficient in many circumstances and promote public health and support sustainable communities. It is important to provide and maintain the facilities needed to support safe and convenient walking and bicycling around our communities and throughout the region. Existing facilities, including roadways, road shoulders, sidewalks, and pathways and trails will need to be improved and supplemented with additional facilities to meet specific needs.

Walking and bicycling are closely connected with each other and with other transportation modes. Everyone who parks a car in a lot or along a street, for example, immediately transitions from a motorist to a pedestrian. Similarly, bicyclists need to be able to secure their vehicles and transition to walking or some form of public transportation. The relationship between a pedestrian and bicycle friendly community and its land use plan is another critical consideration. The type of compact mixed-use centers described in this plan's land use discussion creates an environment that makes walking and bicycling convenient and enjoyable for people.

The Vermont Agency of Transportation has developed programs and guidelines to support walking and bicycling. The Bicycle and Pedestrian Strategic Plan 2021 establishes policy and identifies actions that can help meet goals for improvements that support walking and bicycling. The agency also maintains specific design standards for pedestrian and bicycle facilities. Two grant programs, one overseen by the Bicycle and Pedestrian Program and the other available through the Transportation Alternatives Program offer funding opportunities for local bicycle and pedestrian improvements.

The BCRC has prepared an Active Transportation Project Guide that includes information on particularly important walking and bicycling improvement projects around the region. That Guide, as regularly updated, is adopted by reference as part of this comprehensive regional plan and should be consulted when establishing priorities for project development. The guide currently focuses on three bicycle/pedestrian projects in Pownal, Bennington, and Manchester.

Walking

Virtually everyone is a pedestrian several times a day, even if those movements are confined to traveling to and from a car, bus, or other vehicle. Walking should be considered as both a primary means of transportation and as an accessory to vehicle-based transportation. In addition to being simple and convenient, walking is very energy-efficient, results in no emissions, and is an enjoyable and healthy activity. The types of pedestrian facilities that are most appropriate vary depending on location. In all situations, however, safety, convenience, and the presence of certain amenities will support additional pedestrian activity.

The Southshire's urban center in Bennington and Manchester in the Northshire are ideally suited to walking, with residential neighborhoods, schools, workplaces, and stores all clustered in close proximity. Focused new development and redevelopment in these areas will enable more people to make a significant number of local trips on foot. Many of the region's larger villages, such as North Bennington, Arlington, South Shaftsbury, and Dorset also have concentrations of mixed-use development that are especially conducive to walking.

The most common pedestrian facilities in urban and village centers are sidewalks which lie along roadways, either immediately adjacent to a curb or separated from the curb and/or roadway edge by some type of landscaped strip. Because they follow roadways, these sidewalks provide direct access to a variety of destinations and being located within roadway rights-of-way, are relatively inexpensive to construct and maintain.

In general, sidewalks in downtown areas should be wide, occupying most of the space between the curb line and storefronts, with pockets of green space, street trees, and benches located at regular intervals. Crosswalks provide critical connections in these high traffic areas and must be carefully sited where needed by pedestrians, clearly marked, and supported by traffic signals as necessary.

In residential neighborhoods, and in commercial and mixed-use areas outside downtowns, sidewalks can be narrower and should be separated from the roadway by a landscaped strip; this separation is especially important along roadways where there is no on-street parking or high vehicle speeds prevail. Sidewalks must provide connections to schools, employment centers, and shopping areas. Crosswalks are also needed in these areas and should be sited at intersections with traffic signals or stop signs. It is just as important to provide safe walkway connections from street sidewalks through parking lots and to storefronts and other destinations; those walkway connections should provide a safe route for pedestrians moving from their parked cars to the storefront destination.

People living in small rural hamlets and in homes scattered throughout the region's outlying rural areas also can enjoy the benefits of walking. Walking in these areas also provides access to healthy recreation, a neighbor's house, a country store, or the local school. In many cases, the low-traffic and low-speed local roads in these areas serve as acceptable and safe routes for walking. When important pedestrian routes lie along state highways or more heavily traveled local roads, additional facilities, such as a widened shoulder or a separated pathway are appropriate. Hamlets containing a school, church, store, houses, or similar compact rural development may require a more formal sidewalk network to safely accommodate pedestrian travel, especially when children are frequent walkers in the area.

The region is home to many formal and informal trails (see Map 11-3). Many of

these trails connect to sidewalks, parking areas, or other places that facilitate transportation between various destinations. Public access trails provide outstanding opportunities for recreation. Trailheads should be clearly marked, well-maintained, and provide safe parking areas for vehicles.

Bicycling

Bicycling is an enjoyable and healthy activity that also is an economically and environmentally sound alternative to the automobile for local transportation. With increasing fuel prices and bicycle designs to meet just about every need, increasing numbers of people can be expected to turn to bicycles and other human-powered vehicles for commuting and for fun.

Most bicyclists prefer to ride on paved secondary roads with light or low speed vehicular traffic. Examples of this type of road in our region include West Road in Dorset and River Road/Sunderland Hill Road in Manchester and Sunderland. Such roads are natural bikeways and require little improvement. It is important that pavement be maintained in good condition and that there is not a drop-off from the pavement edge onto a poor or non-existent shoulder. Road hazards (see discussion below) should be eliminated from these important bicycle routes. The needs of bicyclists must be considered if traffic volumes on these roads increase. It may be necessary to widen the lanes or provide a paved shoulder when increased traffic compromises safety.

State highways and Class I town highways often provide the most direct, and often the only passable route for bicyclists traveling between town centers and other important destinations. These roads are characterized by high vehicle volumes and speeds. Route 7A and Route 30 are examples of roads that are important to bicyclists, but also hazardous because of inadequate design and conflicts with cars and trucks. Paved shoulders with a minimum width of four feet (refer to state design standards for further guidance) should be provided along these highways wherever possible. The quality of shoulder pavement should be comparable to the pavement on the travel lanes and should be maintained and kept free of debris. Along sections of roads having curbs (generally in urban and village centers), where shoulders cannot be reasonably provided, the outside lanes should be 14 or 15 feet in width, thus providing adequate room for an automobile and a bicycle. It is critically important to eliminate hazards on these roads, where any obstruction that can cause bicyclists to lose control or be forced quickly into the travel lane poses a very serious safety problem.

Objects and conditions that motorists never notice can be a severe safety hazard for bicyclists. Some of the dangerous hazards include:

- Improperly designed or installed drainage grates.
- Poor pavement condition.
- Utility covers that are not flush with the road surface.

- Railroad crossings, especially when the tracks are not perpendicular to the direction of bicycle travel and there is limited room to maneuver a safe crossing.
- Narrow bridges.
- Signs and utility poles located too close to the edge of the road or shoulder.
- Intersections with unpaved side roads or driveways—and the resulting debris that can accumulate along the edge of the road.

Maintenance or construction projects should note any such hazards and take measures to correct them.

A final consideration is the need for bicycle parking facilities at destinations throughout the region. Bicycles need to be securely stored while not being used and municipalities and businesses can provide a variety of bicycle racks and similar facilities to meet this need. Bicycle racks should be convenient to a building's entrance and should have at least two points of contact with the bicycle frame. The BCRC completed a Bicycle Parking Report in 2014 that assessed bicycle parking needs and opportunities in the region. The report provides standards ("RACK-ommendations") for new bicycle parking throughout the region.

Multi-use Paths

Multi-use paths are off-road routes designed and developed for use by various users, including walkers and bicyclists. They are either paved or gravel-surfaced and meet specific standards suitable for various users. Existing multi-use paths in the region include the D&H Rail Trail in Rupert, the Bennington Pathway in downtown Bennington, the Bennington Rail Trail, a section of paved path along East Road in Bennington that provides access to the middle school, and a path that connects the Manchester Elementary-Middle School with the town's recreation center, Riley Rink at Hunter Park. And points north to North Road. Multi-use pathways can provide valuable links between important destinations (e.g., neighborhoods to school, between village centers or downtowns, etc.) and make outstanding recreational facilities. Pathways are limited as a primary means of bicycle-pedestrian travel, however, in that they are linear features that require secondary connections to reach most destinations and they are expensive to build (because of design standards and, often, the need to purchase rights-of-way).

Construction of these facilities should be considered when alternative sidewalk, trail, or roadway routes between important destinations are limited or unsafe, when existing rights-of-way are available (such as along publicly owned rail corridors), or as part of a planned bicycle-pedestrian network. These paths must be well-built to safely accommodate bicycle use. They should be paved or surfaced with a firm and consistent material that will support narrow high-pressure bicycle tires. Sharp turns must be avoided as bicyclists often travel more than 20 miles per hour. Paths should be at least 10 feet wide with two-foot graded shoulders to safely accommodate two-way bicycle

traffic (along with other path users) and should be designed to minimize roadway crossings.

Priority Walking and Bicycling Improvement Projects

As described already, specific transportation improvements related to walking and bicycling are identified and described in the Active Transportation Project Guide, which is regularly updated to reflect current conditions and needs. That document should be referred to with this plan when determining priority needs and pursuing funding opportunities. Additional needs and potential projects identified by towns and villages should be reported to the BCRC to ensure effective coordination with the Vermont Agency of Transportation and other funding and regulatory agencies. Priority pedestrian and bicycle improvements in the region include:

1. Ninja Trail: On and off-road connection between Bennington's downtown, the Northside Drive area, Bennington College, and North Bennington.
2. Trolley Line Path: planned path connecting Bennington and Pownal to existing shared-use path in Williamstown, MA.
3. Manchester – Manchester Village Main Street Bicycle Safety Project: create a safe and inviting bicycle route along VT7A between Manchester and Manchester Village.
4. Western New England Greenway: Planned bicycle route, primarily on-road, that may require signs and minor roadway improvements.
5. Bennington Bicycle Lane Network: Establish a system of bicycle lanes in Bennington's growth center.
6. Bicycle Parking: Provide bicycle parking facilities at destinations throughout the region.
7. Bennington Downtown Signal Retiming: Modify signalization at main downtown intersection to facilitate pedestrian safety and convenience.
8. Benmont Avenue Active Transportation Corridor: Provision of safe facilities for bicycling and walking and streetscape enhancement.
9. Village Center Improvements in East Dorset: Traffic calming, access management, and crosswalks to enhance village character and provide a safe highway crossing.
10. Village Center Improvements (Shaftsbury): Access management and pedestrian crossings to improve access and safety for walking at Route 7A in South Shaftsbury Village.
11. Village Center Improvements (East Arlington): Reduction in paved areas and related pedestrian improvements.

12. Recreation Park Connecting Path (Arlington): Develop a safe route for walking between Arlington's village center and the town's recreation park.
13. Pownal School: Improved pedestrian facilities and safe crossings between Pownal Center and the Pownal Elementary School.
14. Sunderland Commercial Area: Sidewalks and crosswalks in the area along Route 7A at the base of Equinox Skyline Drive.
15. Recreational walking route across the region through Rupert, Dorset, Peru, and Landgrove, primarily on existing trails, to connect to the West River Trail in Londonderry.
16. Route 7A Safety and Bicycle Improvements: wider paved shoulders between Warm Brook Road in Arlington and South Shaftsbury Village.
17. Sunderland Hill Road: delineation of a safe walking and bicycling lane between Hill Farm Road and the elementary school.

11.7 Greenhouse Gas Emissions from Transportation

Transportation is Vermont's largest source of greenhouse gas (GHG) emissions accounting for 40% of the state's total GHG emissions. Trucks accounted for 83% of Vermont's transportation GHG emissions in 2022 with light trucks being the largest source of GHG emissions of any vehicle type, accounting for 51% of transportation GHG emissions. In September 2020, the Vermont Legislature passed the Global Warming Solutions Act (GWSA), a climate-action accountability framework. The Agency of Transportation's Vermont Carbon Reduction Strategy outlines strategy to meet the transportation component of the GWSA which requires that Vermont reduce its gross GHG emissions at least 26 percent below 2005 levels by 2025; 40 percent below 1990 levels by 2030; and 80 percent below 1990 levels by 2050. Regional strategies to meet these goals are discussed in Chapter 13 of this plan.

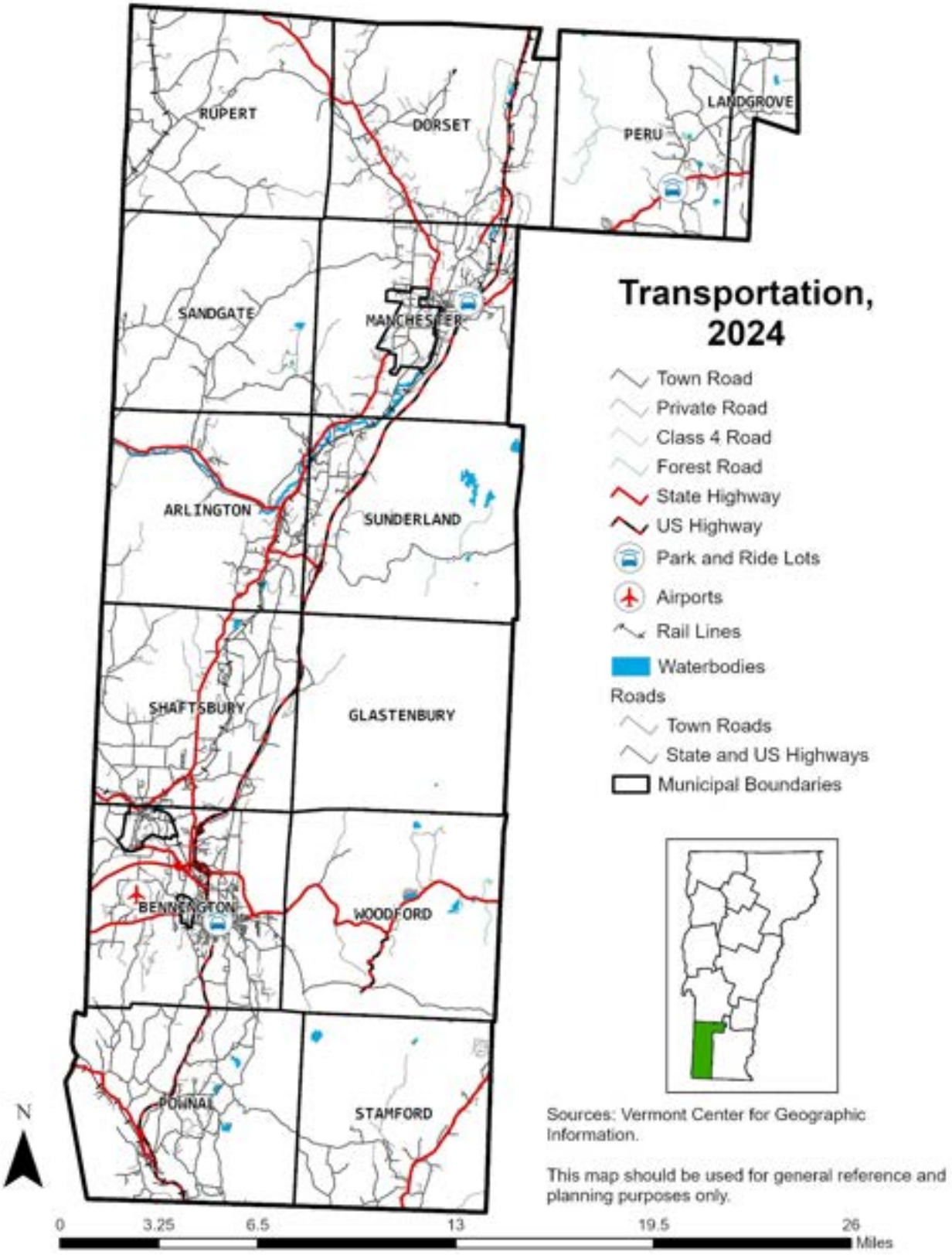
11.8 Transportation Policies and Actions

Continue to work with local and state officials to implement projects identified as priorities in this plan and in other regional and local documents. Update the project lists and assign priorities regularly.

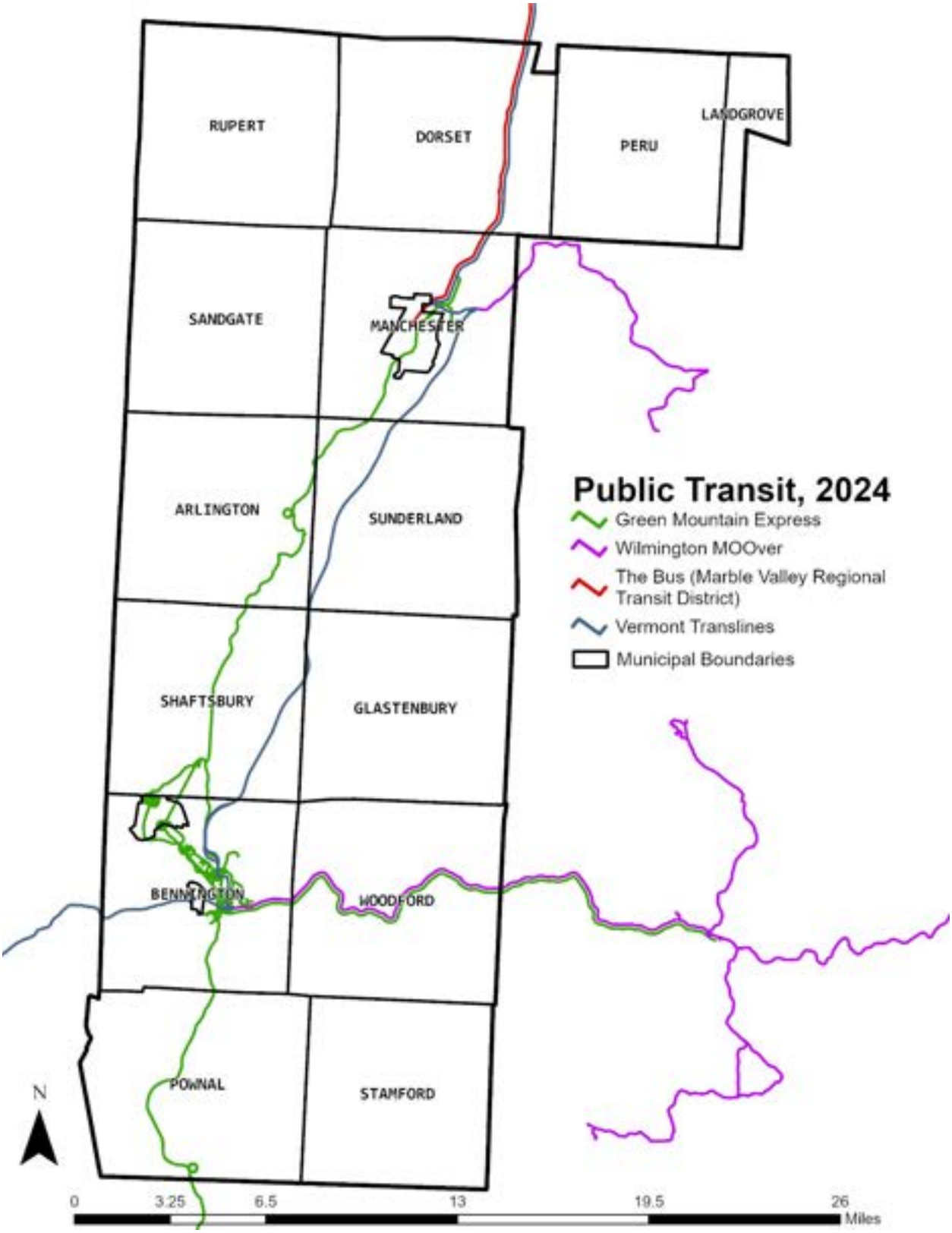
1. Create a robust electric vehicle charging network to promote the transition to electric vehicles.
2. Work on projects and policies that reduce GHG emissions from transportation.
3. Improve public transportation between key origins and destinations so that it attracts "choice riders" (riders who choose to take transit over driving personal vehicles).

4. Create safe and inviting bicycle and pedestrian networks, particularly in downtowns and village centers, to boost the trip mode share of walking and biking.
5. Design roads and streets so that they are “self-enforcing” and do not invite drivers to exceed the speed limit.
6. New and reconstructed roads, bridges, and stormwater systems should be designed, built, and maintained in accordance with current highway codes and standards and other local and state requirements. Flood resilience and water quality should be leading considerations in all highway projects.
7. Transportation investments should focus on maintaining existing infrastructure and correcting deficiencies and safety hazards. Major investments should occur primarily in areas planned for growth with little investment in new roads in remote and mountainous areas. Municipalities should include large transportation expenses in capital budgets.
8. Transportation system improvements must limit adverse impacts on important natural and cultural resources and minimize disturbances to residential areas.
9. All developments should provide an amount of parking appropriate for the use and location and should employ access management techniques to enhance safety and limit congestion.
10. Commercial truck routes should avoid excessive conflicts with local traffic and impacts on residential neighborhoods.
11. Road construction and maintenance activities should be consistent with scenic values.
12. Support extension and improvements to local and regional public transportation services.
13. Support efforts to complete passenger rail service along the entire western corridor between Albany-Rensselaer, Bennington, Rutland, and Burlington.
14. Ensure that all railroad crossings with local and state highways meet safety standards.
15. Encourage and assist with the development and maintenance of safe and convenient pedestrian routes in downtowns, village centers, hamlets, neighborhoods, and all areas of concentrated development. Traffic calming techniques should be used in these areas to reduce vehicle speeds and enhance safety.

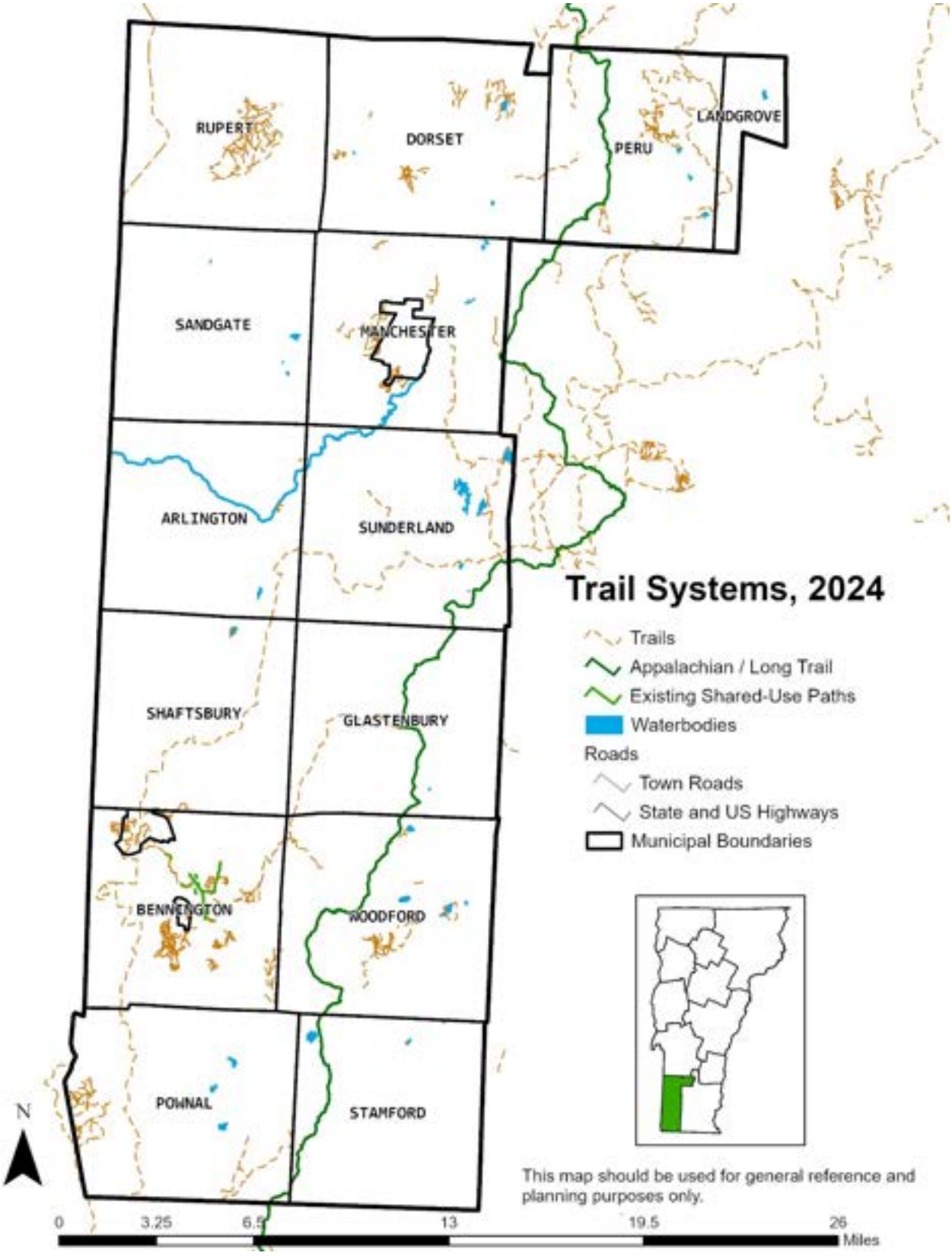
Map 11-1. Transportation System in the Bennington Region.



Map 11-2. Public Transit Routes in the Bennington Region.



Map 11-3. Recreational Trails in the Bennington Region.



12 UTILITIES, FACILITIES, AND SERVICES

12.1 Overview

A wide variety of utilities, facilities, and services, owned and operated either by public bodies or by private interests that serve the general public, is present in the Bennington region. These resources are essential in that they provide necessary services for the region's residents, support the land use and development goals of local and regional plans, and facilitate effective economic development. Proper management and strategic investments are necessary to ensure that they are utilized as efficiently and effectively as possible.

Each town and village in the region is home to one or more of these assets and some span or serve multiple municipalities or the entire region. And while the larger and more developed municipalities have the most extensive collection of these utilities, facilities, and services, each individual component contributes to the functioning of a complex network that serves all the region's residents, businesses, and visitors.

The range of needs met by these utilities, facilities, and services is impressive. For example, water supply and wastewater disposal systems support environmental quality and public health objectives while being directly related to the ability to develop compact mixed-use centers. Proper management of solid waste minimizes pollution while making cost-effective use of resources. Local generation and distribution of electricity is fundamental to many aspects of daily life and commercial activities. With the planned transition away from fossil fuels, local electricity generation and distribution promises to become even more important in the coming years. Similarly, modern telecommunication systems are needed to provide access to information and to ensure that local businesses can compete in an increasingly global market. Health care services employ more residents than any other economic sector in the region while maintaining the overall health of the population. Finally, municipal and state buildings house services and offer activities that are relied upon throughout the region. This section of the regional plan will address each of these assets and identify priorities for maintaining and improving services.

12.2 Water Supply and Wastewater Disposal

Village centers, downtowns, and moderate to high density residential neighborhoods all rely on adequate water supply and wastewater disposal systems to support the type and density of development planned for those areas. These systems are crucial for the protection of public health and to meet local and state regulatory requirements related to the density of development. Many of the region's compact centers are served by either a public water or sewer system, or both (see Map 12-1). Other areas planned for relatively dense development lack these facilities, however, and consequently their ability to support growth that reflects mixed use walkable

communities is extremely limited.

Public water supply systems in the region range from small networks serving a few clustered residences to large municipal systems such as those in Bennington and Manchester. Some of the systems are owned by municipal governments, some by local public water districts (generally known as fire districts in most towns), and some are owned by private companies.

Regardless of ownership status, any system with at least ten service connections, or serving at least 25 people, is considered a public community water supply and is subject to specific regulatory standards. State and federal actions have mandated filtration system upgrades and other improvements to many of the systems. These improvements, while costly, will help ensure continued supplies of clean water for residential and commercial use. In addition to facility improvements, source protection areas for many of the public water supplies have been delineated and uses within those areas need to be monitored and controlled to prevent contamination.

Investments in existing water supply systems should be directed toward meeting public health requirements and expanding capacity to serve the needs of planned downtowns, village centers, and other growth areas. Capacity may be expanded by increasing the amount of water collected, stored, and distributed, or by providing incentives for water conservation. Installation of water meters, allowing billing to be tied to usage, has proven to be a particularly effective way to encourage conservation and thus to increase capacity.

New or expanded public water supplies should not encourage scattered growth in outlying areas, although it may be desirable and efficient to develop small public water systems to serve hamlets and clusters of homes in rural areas. Restricting future service to defined water service areas that are consistent with planned growth areas is one way to ensure that system extensions do not encourage inefficient scattered development.

One of the factors that allows public water systems to support higher densities of development is that the wastewater from on-site disposal systems does not contaminate the water supply. Of course, removal of the wastewater discharges from the area altogether, through a public wastewater, or sewage, system is even more effective in that regard. These public sewage systems collect and treat wastewater prior to discharge (generally into a watercourse or to a designated spray field area), allowing the greatest flexibility in development planning while also remediating any pollution problems resulting from inadequate or failed on-site disposal systems.

Bennington and Manchester have had municipal wastewater disposal systems for many years. Each system has capacity to handle additional growth, but both note that some changes will be needed to ensure that capacity exists to continue to support

desired development in those two regional urban centers. Stormwater overflows and infiltration of water into the collection systems significantly degrade capacity. Additional stormwater separation and pipe replacement projects have the potential for significantly increasing capacity for these systems. A complete discussion of the Manchester and Bennington water and wastewater systems can be found in their respective town plans.

Pownal has completed installation of a new municipal wastewater disposal system that serves the Pownal, Pownal Center, and North Pownal village centers. That project was designed to address severe water pollution problems in these areas of relatively dense development, and to enable additional growth in the villages. The project also was designed to discourage any extension of sewage capacity to the rural areas between and outside of the three village centers.

While public wastewater disposal systems may be appropriate in many of the region's compact centers, South Shaftsbury and Arlington have faced particularly severe challenges in meeting development goals while lacking such infrastructure. If additional capacity is made available in the Bennington system, an extension beyond North Bennington to South Shaftsbury may be considered.

Arlington continues to explore options for wastewater facilities, especially in light of limitations that have been discussed during the study of the water supply system. Arlington and other communities faced with similar challenges may explore the potential for development of a traditional municipal sewage collection, treatment, and disposal system, but based on cost, limited state or federal funding, or other concerns, may also consider use of innovative community or individual on-site treatment facilities, as described in Wastewater Solutions for Vermont Communities. The assessment of wastewater infrastructure needs of local communities should include an identification of options for addressing the specific environmental and development constraints faced by each village center.

Any public wastewater disposal system should be supported by specific municipal policies that identify how the capacity of the system will be allocated to existing and new development as well as a service area map that limits expansion of the system to areas planned for higher density development.

12.3 Solid Waste Management

The region's towns and villages rely on a variety of solid waste and recycling collection and transport facilities and services (Map 12-2). State permitted solid waste and recycling transfer stations are located in Stamford, Pownal, Bennington, Shaftsbury, Sunderland, and Dorset. Additional State permitted solid waste infrastructure includes a construction and demolition debris collection site located in Bennington, a household hazardous waste collection facility located in Bennington, and composting facilities located in Bennington, Dorset, and Stamford.

Management and oversight of individual transfer stations is accomplished by individual towns, with the exception of Arlington, Dorset, Manchester, Sandgate, and Sunderland which share access and transfer station operation costs under an Integrated Solid Waste Management Program administered by the Bennington County Solid Waste Alliance (BCSWA).

State requirements and incentive programs related to solid waste place an emphasis on reducing the volume of waste that is produced and ensuring that a maximum amount of waste produced in the region is diverted from the landfill. This includes efforts to find reuse, recycling and processing opportunities locally. Individual towns work with BCSWA to administer agreements with private companies that collect and transfer waste and recyclables to disposal and processing facilities outside the region.

Since 2012 Vermont waste has been largely managed under the Universal Recycling Law that:

1. Prohibits recyclables, food wastes, and leaf and yard debris from being sent to landfills.
2. Provides greater convenience by requiring that these materials be collected along with normal household trash.
3. Requires user fees based on the amount of material disposed.

Implementation of the Universal Recycling Law is managed by the Vermont Agency of Natural Resources under a Materials Management Plan (MMP), with an update anticipated to be passed in late 2024. The MMP sets out broad goals and specific actions that will be taken by the state and by local and regional waste management organizations to address issues in each of the following categories:

- *Recyclables including metal cans, foil and pie plates, glass, PET and HDPE plastics, corrugated cardboard, and paper products.* Many of these materials can be used to create new products. These items are banned from the landfill, large waste haulers are required to collect these items from the public, and landlords are required to provide access to organics collection.
- *Organics including food scraps and leaf and yard waste.* These materials can be composted for use in amending the soil and for erosion control or can be used to create biogas, primarily methane, to produce energy. Food scraps specifically are banned from the landfill, large waste haulers are required to collect these items from the public, and landlords are required to provide access to organics collection.
- *Construction and demolition materials including clean wood.* For many products such as asphalt shingles, drywall and others, recycling options exist but markets are limited.

- *Household Hazardous Waste* includes pesticides, automotive fluids, and household chemicals that must be disposed in specialized facilities.
- *Conditional Exempt Generators* are small businesses or municipalities that generate less than 220 pounds of such materials.
- *Electronic Waste* includes computers and peripherals, televisions and other devices, many of which contain toxic materials as well as precious metals.
- *Universal Waste* includes batteries, fluorescent lamps and ballast and certain mercury containing devices, which must be handled in specialized facilities.

Landfill bans are in place on rechargeable batteries, lead acid batteries, button batteries, certain electronic devices, fluorescent bulbs, motor oil, paints, regulated medical waste, propane and other gas cylinders, explosives, mercury-added products, and other dangerous materials. Banned electronic devices include computers, peripherals, monitors, cathode ray tubes, televisions, printers, and electronic devices. Landfill bans are also in place for non-hazardous materials, such as tires and household appliances.

The collection and disposal of many landfill banned items are directed by Vermont Extended Producer Responsibility (EPR) laws including Act 58 of 2013 which established a paint collection program, Acts 139 and 152 which established requirements for primary and rechargeable battery stewardship and disposal, and Act 58 of 2023 establishing requirements for hazardous product manufactures to collect these wastes. EPR is a public policy approach that assigns producer responsibility to manage collection and disposal through product stewardship organizations that may collect the items themselves or offer a reimbursement to local solid waste management entities to collect and track the items.

Bennington County Solid Waste Alliance

The BCRC provides direct support to the Bennington County Solid Waste Alliance (BCSWA) the region's local solid waste management entity. The mission of the BCSWA is to reduce the amount of waste disposed of in landfills, incinerators, or similar means by reducing the amount of waste generated, conserving resources, and promoting recycling and reuse. The mission of the BCSWA is to reduce the amount of waste disposed of in landfills, incinerators, or similar means by reducing the amount of waste generated, conserving resources, and promoting recycling and reuse. BCSWA is an independent organization that operates under a management contract with BCRC.

BCSWA was formed through an interlocal contract under Title 24, Chapter 121 of the Vermont Statutes in 2015. The Alliance consists of the Towns of Arlington, Bennington, Dorset, Glastenbury, Manchester, Pownal, Rupert, Sandgate, Searsburg, Shaftsbury, Stamford, Sunderland, and Woodford. The alliance completed and adopted a solid waste implementation plan (SWIP) on November 17, 2015. This plan was

subsequently approved by the Vermont Agency of Natural Resources on December 14, 2015. Since then, the plan has been updated and amended as of August of 2021. The state requires this plan to be updated every five years, with the next update anticipated in 2025.

Regional Solid Waste Implementation Plan (SWIP)

Vermont's Materials Management Program (MMP) requires that solid waste management districts, alliances, and independent municipalities develop solid waste implementation plans (SWIP) that conform to the state plan. In our region this is managed by the Bennington County Solid Waste Alliance (BCSWA). The regional SWIP, which was developed with support from the BCRC, outlines siting requirements for new waste collection and storage facilities, and methods to track and report on progress with state waste reduction goals. It encourages schools, businesses, and residents to reduce the amount of waste generated, reuse materials where possible, recycle those materials that can be turned into new products, and properly dispose of waste and hazardous materials. It outlines community outreach efforts including programs for schools and businesses, identifying sites for collecting textiles, and providing technical assistance at public and private events on materials management, requirements for haulers to implement unit-based pricing and collect all items required under state law.

Under the SWIP BCSWA also manages a household hazardous waste collection facility that operates from May through October of each year and is open to residents and local businesses that qualify as "Very Small Quantity Generators" of hazardous waste. Detailed Information on existing solid waste facilities and services, as well as the new regional SWIP are made available through regular newsletters and updates from BCSWA. BCSWA maintains a web presence at https://bcswa.org.

12.4 Electricity

With inevitable increases in the cost and decrease in the availability of the liquid fossil fuels (oil, natural and liquid propane gas, and motor gasoline and diesel) that have fueled our lifestyles and economy over the past 100-plus years, it is expected that attention will increasingly be turned to electricity to supply energy needs. Electricity can be used to power motors in vehicles, machinery, and appliances, and to heat and cool buildings and water.

The most significant concern with electricity use in general, and with scenarios that forecast growing electricity use in the region in the future, is that electricity is only a means of delivering energy; it is not a source of energy. In recent decades, most of the region's electricity has been imported from large regional generators powered by nuclear fuel, natural gas, coal, and recently, from various renewable energy sources, primarily hydroelectric power from Canada. In the future, however, it is likely that greater reliance will be placed on local generators, most of which will be powered by renewable

energy sources. Consequently, while Vermont should continue to seek long-term contracts for stable sources of imported electricity, a concerted effort to develop local generation should be a priority. As discussed further in the regional energy plan – Chapter 13 of this plan – hydroelectric, solar and wind energy projects are under development in the region.

Small renewable generators – such as photovoltaic and wind energy systems scaled for individual homes and businesses – can support regional generation needs as well. Recent state rebate and federal tax credit programs have been helpful to fund these and will be even more beneficial as electricity prices increase over time. Another distributed energy strategy with a role to play in the future is "combined heat and power" (CHP) facilities, where excess heat from a boiler facility that runs year-round (such as at a hospital) is used to generate electricity that can be fed into the regional power grid.

Electricity generation and the adequacy of fuel supplies is one concern. Transmission and distribution of that power is another. Vermont's "southern loop" transmission system serves the Bennington region (see Map 12-3). The Vermont Electric Company (VELCO), the state's electricity transmission company, has indicated that southern Vermont electrical transmission facilities will need significant improvements over time. In addition to ongoing investigations into transmission and distribution line upgrades and continued efforts by Green Mountain Power and Efficiency Vermont to reduce demand through conservation, implementation of "smart grid" technology ultimately will be necessary to efficiently manage electricity transmission, distribution, and utilization.

A smart grid will be supported by many smaller generating facilities (including renewable energy based and CHP systems), distributed throughout the grid at locations closer to where the electricity is consumed. Advanced technologies will allow a two-way flow of electricity and information and will be capable of monitoring everything from power plants to customer preferences to individual appliances; these technologies will enable delivery of real-time information and enable the near-instantaneous balance of supply and demand. The US Department of Energy has identified five key smart grid technology features:

1. Integrated communications, connecting components to open architecture for real-time information and control, allowing every part of the grid to both "talk" and "listen."
2. Sensing and measurement technologies to support more accurate and rapid monitoring, time-of-use pricing, and demand management.
3. Advanced components to provide for superconductivity and storage of electricity.
4. Control methods to monitor essential components enabling rapid diagnosis and precise solutions to any anomalous event.

5. Improved interfaces and decision support for system operators and managers.

An extremely large investment in research and development will be required to implement smart grids and considerable federal funding has been directed toward this effort recently. It is important to note that this important new way of using electricity will rely on many new small generating facilities, distributed throughout the grid -- and most certainly within the Bennington region – as well as conservation through reduced demand. The technological aspects of demand management will need to be combined with ongoing conservation efforts to achieve a successful solution.

12.5 Information and Telecommunication Services

The Bennington region is served by a modern and rapidly developing information infrastructure. Access to broadband internet connectivity and consistent wireless communication services, for voice and data, have become increasingly important to residents, schools, colleges, institutions, local businesses, and visitors to the region. Vermont has committed to ensuring that all parts of the state have access to broadband within the near future, with an ultimate goal of universal coverage at fiber optic speeds of 100 megabits per second (mbps) download and upload by 2024. Information on broadband service and maps showing current service status and planned upgrades can be found at the Vermont Community Broadband Board website.

An important recent broadband project in the region was the creation of the Southern Vermont Communications Union District (SoVT CUD). A CUD is an organization of two or more municipalities that come together to form a municipal entity to build telecommunication infrastructure in their territory. The SoVT CUD was formed in 2020 and is made up of fourteen member towns. SoVT CUD formed a partnership with Consolidated Communications Inc. to expand broadband coverage in Southern Vermont and received a $9 million grant from the Vermont Community Broadband Board for this expansion. The broadband expansion effort was completed in late 2023, providing high-speed fiber internet to more than 33,000 residents of Southern Vermont. More information about SoVT CUD's work can be found at SoVT CUD - Bringing high-speed internet to Southern Vermont.

Cellular telephone service providers have been steadily expanding their coverage area within the region with the installation of new towers and antennas at strategic locations. The widespread availability and use of tablet computers and smart phones has led to an even greater demand for these wireless facilities. The infrastructure required for wireless communication services include towers, antennas, equipment buildings, access roads, and electrical service. The Bennington region is a challenging area for the development of wireless communication infrastructure. The narrowness of the inhabited valleys and highly visible slopes and ridges of the surrounding mountains require careful siting to ensure that adequate coverage is

efficiently provided while not having undue adverse impacts on natural or scenic resources. Those concerns can be minimized by careful planning that includes siting antennas on existing buildings or structures, co-location of antennas on towers to limit the number of towers, and careful site design to avoid sensitive areas and avoid disruption of viewsheds identified as particularly important to local communities.

The Vermont Public Utility Commission has regulatory jurisdiction over the siting of telecommunication facilities, weighing the public good of a proposal together with its environmental and social impacts. Municipal and regional plans are given consideration by the Public Utility Commission, so it is important that those plans include clear policy guidelines regarding sensitive areas, tower height, co-location requirements, and other factors. In some cases, it may be preferable to develop one tall (140 feet or more) tower that provides coverage over a relatively wide area in a location where identified local and regional impacts can be avoided. In other cases, two or more smaller and lower towers (90 feet in height and possibly using a “monopole” design) might be needed to provide the same coverage while avoiding impacts to natural and scenic resources or residential neighborhoods.

Of course, print media, broadcast, cable, and satellite television, and local radio stations remain critical components of the region’s information infrastructure. Most of those services also now make use of digital outlets to deliver their content to the public. One daily newspaper, the Bennington Banner, is published in the region. The Rutland Herald also provides news coverage of Bennington region communities and is widely read in the area. The Manchester Journal is a weekly newspaper that provides coverage throughout the Northshire. The Vermont News Guide includes community announcements, letters, and classified advertisements.

Local broadcast television stations with signals that reach all or part of the region include network stations from the Albany, New York and Burlington, Vermont areas. Because of the distance from those cities and the mountainous topography in the Bennington region, most people rely on cable and satellite television. Cable and satellite television companies also provide access to a wide variety of programming and often pair their services with internet and telephone communication as well. Local public access television stations – GNAT-TV in the Northshire and CAT-TV in the Southshire – are extremely important to local communities, providing an outlet for locally produced shows and regular coverage of municipal government, school district, and other public meetings.

Local radio stations likewise include statewide and regional broadcasters. Vermont Public transmits FM high-definition news and entertainment coverage from transmitters in Bennington, Manchester, Rupert, and Sunderland. WBTN is an important local AM station serving the Bennington market, while WEQX is an FM station broadcasting from Manchester.

12.6 Health Care Facilities and Services

Health care facilities are located throughout the region and general service clinics and the regional hospital are shown in Map 12-4. The regional hospital, Southern Vermont Medical Center (SVMC), is located just southwest of Bennington's downtown. It is surrounded by a cluster of medical and dental office buildings offering a wide range of services for residents of Bennington and surrounding communities. SVMC maintains a campus in Manchester (SVMC – Northshire) that provides primary care services to the Northshire. SVMC opened a medical office in Pownal in 2015 to serve residents of that town and nearby communities in Berkshire County, meeting a need that was exacerbated by the closing of the hospital in North Adams in 2014.

The Manchester Medical Center opened in 2019 to provide urgent and primary medical care in the Northshire. The Battenkill Valley Health Center, located in Arlington, provides convenient access to primary care for over 4,000 residents of Arlington, Sunderland, and Sandgate and beyond. Employing over 270 people, community based mental health and social services are provided by the federally qualified United Counseling Service (UCS) with multiple offices in Bennington, and an office in Manchester serving the Northshire. Many private practice physicians, dentists, chiropractors, and alternative therapy professionals are in the region, with concentrations in the Bennington and Manchester regional centers.

The health care sector is transitioning to a new service delivery model, with an emphasis on prevention, linking policy and environmental strategies to health outcomes. The BCRC has worked with SVMC, the Alliance for Community Transformations, and the Vermont Department of Health on several healthy community design and tobacco/substance abuse prevention initiatives in support of these efforts.

The Blueprint for Health is Vermont's state-led chronic care initiative that is intended to lead to sustainable reform in the way that health care is delivered. Originally codified in Vermont statute in 2006 and subsequently modified, most recently through an amendment to 18 V.S.A. Chapter 13, the Blueprint for Health is defined as a "program for integrating a system of health care for patients, improving the health of the overall population, and improving control over health care costs by promoting health maintenance, prevention, and care coordination and management.

Prevention can reduce the serious economic burden of disease while also improving the quality of people's lives. The blueprint is designed to help all residents access the best available health services through:

- Advanced primary care practices that are recognized as patient-centered medical homes (PCMH) by the National Committee for Quality Assurance.
- Multi-disciplinary core Community Health Teams supporting PCMHs and providing the general and targeted subpopulations with access to

multidisciplinary health services.

- Evidence-based self-management programs and decision-making support to help citizens adopt healthier lifestyles and engage in preventive health services.
- Implementation of health information technology to support health information exchange, population management, and comparative evaluation.
- Multi-insurer payment reforms that fund PCMH transformation and Community Health Teams.

Implementation of the Blueprint for Health is administered through thirteen Hospital Service Areas (HSA) in the state. This approach to decentralized administration and independent accountability is designed to inspire engagement, creativity, shared decision making, and a sense of ownership. There currently are ten primary care practices (seven independent single sites, two hospital-owned, one independent multi-site) in the Bennington HSA recognized as PCMHs, with the addition of three new practices in survey preparation. Community health team staff (currently 6.3 FTE positions) provide administrative services, care coordination, social work, mental health services, nutrition expertise, and other specialized services. Over the past two years, 21,646 patients were served by Blueprint for Health practices in the Bennington HSA.

12.7 Public Buildings

Town halls, schools, post offices, churches, libraries and other public buildings always have been important to the quality of life in local communities. These buildings provide an important focus for residents that contributes to each community's unique sense of place. As the location for important public functions and meetings, they serve an essential role in the life of towns and villages. Many of these buildings are in historic village centers and downtowns (see Map 12-2), and many are important historic buildings. It is particularly important to ensure that these buildings remain in historic centers to support distinct and cohesive communities.

With the construction of a new town hall in Sunderland in 2014, all of the municipalities in the region, with the exception of Old Bennington and the unorganized town of Glastenbury, have public buildings to house local government operations. Rupert recently acquired the former West Rupert School and municipal offices now are located in that building. Landgrove and Peru both recently completed major renovations to their town halls. In 2022, Pownal moved into its newly constructed town office building.

The region is fortunate to be served by several outstanding public libraries (Map 12-5). The largest are the Bennington Free Library, the Manchester Community Library, the Dorset Public Library, the Martha Canfield Library in Arlington, the John McCullough Free Library in North Bennington, the Solomon Wright Library in Pownal, and the R.K.

Kittay Public Library in Rupert. These buildings offer free and open access to information, computing facilities, and educational, cultural, and recreational resources. Libraries maintain collections of books and periodicals, afford access to the internet and online research tools, and host lectures, concerts, and special exhibits. The libraries generally include a small professional staff supported by many volunteers and rely on a combination of municipal funds, grants, and private donations to operate. Libraries always should be counted as a key asset when evaluating local resources and should be provided with stable sources of public funds.

In addition to the many other municipally owned buildings in the region (see Map 12-2), there are two historic county courthouses, one in the Northshire and one in the Southshire. However, jurisdiction of the Manchester courthouse recently reverted back to the Town of Manchester after county judicial operations ceased there. Other judicial functions as well as local offices for many state agencies are found in the new state office building, located on Route 7 north of downtown Bennington. Because many residents need to access services in this building on a regular basis, developing safe and convenient access to the building for pedestrians and bicycles should be a priority transportation improvement project. Another state building in the region is the Bennington Welcome Center, located at the US 7–VT 279 highway interchange where visitors can obtain information about the region and its many attractions while enjoying a spectacular view of the surrounding landscape and the Bennington Battle Monument.

12.8 Recreational Facilities

The Bennington region's many recreational facilities are important economically and for the contribution they make to the quality of life for area residents. Municipalities, the State of Vermont, the United States Forest Service, non-profit organizations, and private concerns all operate recreational facilities of one kind or another in the region (Map 12-5). In addition, the playgrounds, playing fields, and gymnasiums at public schools are used by students as well as the general public. Continued public support and mutual cooperation will ensure that the quality and variety of recreational experiences available in the region will remain one of its most distinguishing characteristics.

The public parks and other facilities operated by the Vermont Department of Forests, Parks, and Recreation, and those maintained by the United States Forest Service, are among the most popular and visible recreational amenities in the region. The state parks and Forest Service camping and recreation areas offer a variety of activities and are well distributed throughout the region. And as discussed in Chapter 9, public lands and trails ensure that the natural resources of the region are available for public recreational use.

Municipal recreation parks are extremely important to local communities. Willow Park and the Municipal Recreation Center in Bennington, Howard Park in Shaftsbury,

the Dana Thompson Recreation Center in Manchester, the Arlington Recreation Park, and the Mettowee Valley Recreation Park in Rupert are examples of these valuable community facilities. These parks and smaller neighborhood parks provide places for children to engage in informal healthy play, while also hosting summer day camps, picnics, and community festivals. Many also have facilities that are needed for various team and individual sports.

In 2009, Bennington adopted a Park and Open Space Plan , which included an assessment of recreational resources in the town. Other towns can use a similar process to inventory their recreation assets and identify needed improvements. Bennington determined that development of a pathway network and additional indoor recreational facilities are priorities for the community. In response to that planning process, several projects currently are underway to develop connected pathways. An addition to the Municipal Recreation Center, the Spring Center was completed in 2021 in partnership with United Counseling Services which provides childcare classrooms, a kitchen, a community multipurpose room, and a new playground.

Manchester's Dana Thompson Memorial Park has several amenities that make it a regional and even national destination. With four state-of-the-art playing fields, it regularly hosts regional tournaments for soccer and lacrosse. Its skate park draws local boarders as well as boarders from all over the country. Baseball and softball are accommodated on three ball diamonds. Tennis, basketball, and sand volleyball courts are also available. A one mile perimeter path is used daily for walkers, runners, and bikers and is connected to paths leading south into the downtown and north to North Road. The path north connects to Hunter Park, which has more playing fields and an ice rink.

Pownal is the only one of the larger towns in the region that lacks a conveniently located community park. The town acquired property formerly owned by the Pownal Tannery and it has become the Strobridge Recreational Area. Pownal does have two smaller recreational areas: the Route 346 ball fields and a small green near the town offices.

Development of additional small parks in locations convenient to concentrations of residential development in towns throughout the region would encourage additional physical activity and be a significant amenity for residents. New residential developments located in areas relatively distant from park and recreation facilities should include land that is dedicated to recreational use. All developments should include internal sidewalks and pathways as well as safe and convenient access for pedestrians and bicyclists to nearby recreation areas, schools, and shopping and employment centers.

The BCRC and local communities should maintain inventories of all public parks and recreation facilities in the region and identify any barriers to access to those

facilities. Furthermore, local communities should consider improvements to roads, sidewalks, and parking areas that will make it easier for residents, including children, to exercise on a regular basis. The Complete Streets principles described in more detail in Chapter 11 should be considered in all local and state roadway improvement projects, and opportunities for integrating public spaces for informal meeting and activities should be considered for inclusion in public and private developments in downtowns and village centers.

12.9 Public Safety and Emergency Management

Policing, fire protection, and emergency rescue services are important for all the towns and villages in the region. Bennington and Manchester maintain the only paid municipal police departments in the region while many more towns (and the Village of North Bennington) are served by local volunteer fire departments. In addition to emergency response services provided by the local fire departments, private nonprofit rescue squads providing emergency medical care and related transportation services are located in Pownal, Bennington, Arlington, and Manchester. A rescue squad in Londonderry provides emergency medical services in Peru and Landgrove and the Granville, NY rescue squad provides coverage into Rupert.

Some of the rural towns in the region rely on contracts with the Bennington County Sheriff and support from the Vermont State Police to provide police protection. Those arrangements are examples of regional provision of public safety services, something that also is seen in the case of most of the rescue squads that cover multi-town areas. The towns of Manchester and Dorset recently initiated a study to assess how to most cost-effectively provide high quality police, fire, and emergency medical services to residents of both towns. The study is investigating various models of intermunicipal cooperation that could cover police, fire, and emergency services in any combination and under different jurisdictional models. Towns and villages should ensure that all of these service providers are adequately funded and should consider alternative and cooperative approaches to maintain efficient service delivery.

Much of the region's emergency management infrastructure is described in Chapter 10 of this plan. The BCRC works with the Local Emergency Planning Committee to coordinate emergency response planning and actions regionally. Equally important is the network of local emergency management directors in each community, the local emergency management plans (LEMPs – previously known as local emergency operations plans) that provide critical information needed for emergency responders and local officials, and the hazard mitigation plans that each municipality should develop and maintain to set out the actions needed to minimize impacts and aid recovery from any disaster.

12.10 Public Services Policies and Actions

1. Public investments in utilities, facilities, and services should support and

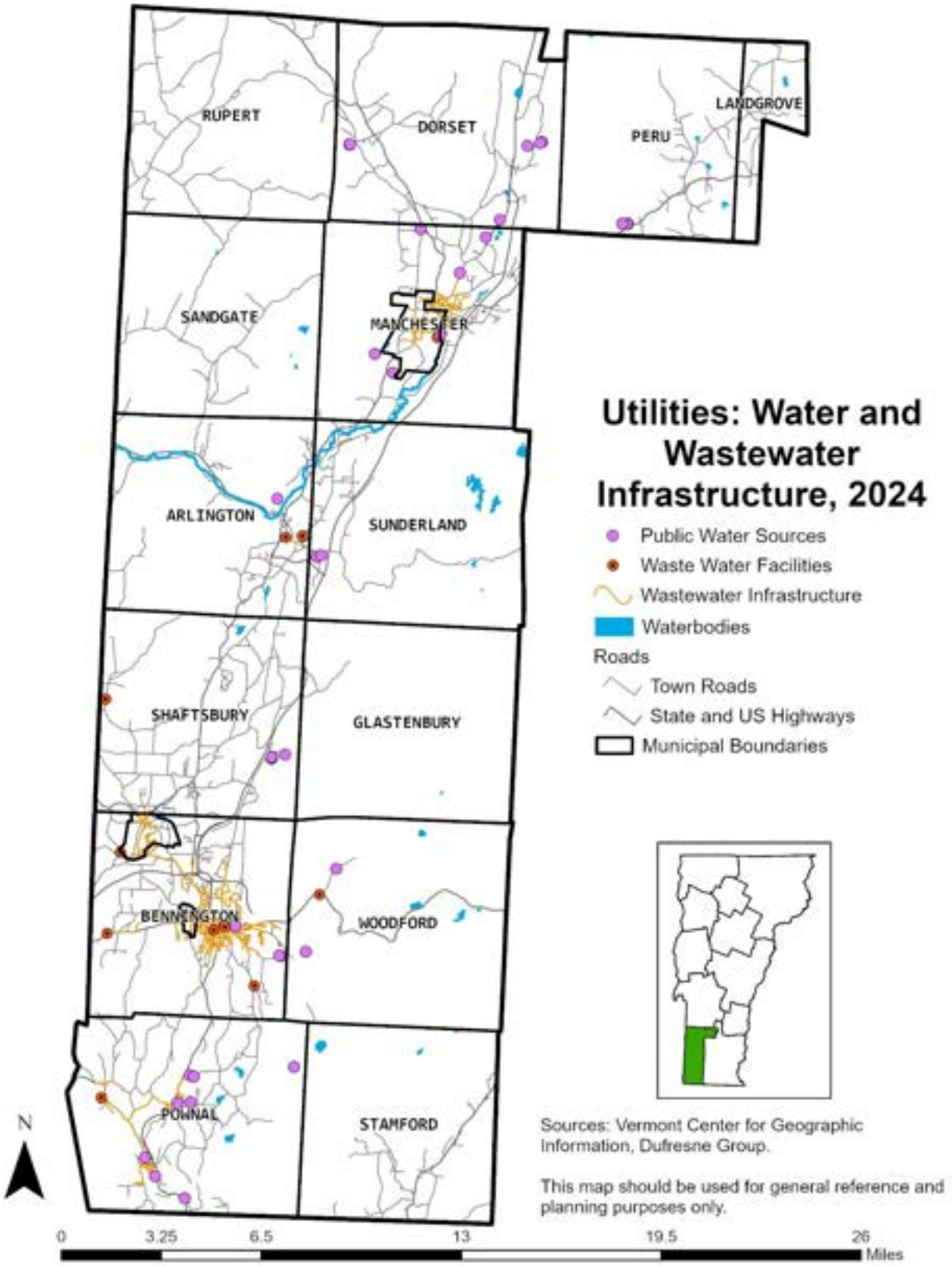
reinforce historical development patterns by encouraging development in downtowns, village centers, and other areas planned for growth and not in outlying rural areas.

2. Careful and coordinated financial planning at the municipal level is critical to ensure that local investments are effective and affordable. The BCRC should offer assistance to towns and villages in the development of capital budgets and programs.
3. Large new developments that require improvements to or expansion of existing public utilities, facilities, or services should be responsible for paying a fair share for the provision of that new or expanded infrastructure or service delivery systems.
4. Emphasis should be placed on the maintenance of existing public water supply and waste- water disposal systems to serve areas of concentrated development or to correct serious health hazards. The BCRC should work with local governments to assess water and sewer infrastructure needs required to support planned development in these areas.
5. The BCRC will work with towns in the region to develop a comprehensive solid waste plan that will implement the goals of the Vermont Materials Management Plan in a manner that is deemed most appropriate for local communities. Long-term facilities and management structures that promote responsible and cost-effective resource use must be identified and implemented.
6. The BCRC should support the establishment of environmentally and economically sound renewable energy generation facilities and implementation of smart grid technology.
7. The BCRC should facilitate local and state cooperative efforts to aggressively expand cellular voice and data communication services to all parts of the region. Siting of new telecommunication towers should give primary consideration to concerns identified in municipal and regional plans. Service providers should consider the aesthetic character in tower siting and design. As a first priority, antennas should be located in, or attached to, existing structures where they are not prominently visible. “Stealth” tower designs may be used when they blend naturally into the surrounding landscape. New towers should be no taller than necessary to provide coverage, and developers should consider whether multiple small towers or antenna locations would be preferable to a large tower.
8. The BCRC supports access to primary and specialized health care for all residents. Cooperation with the Vermont Department of Health, SVMC, and

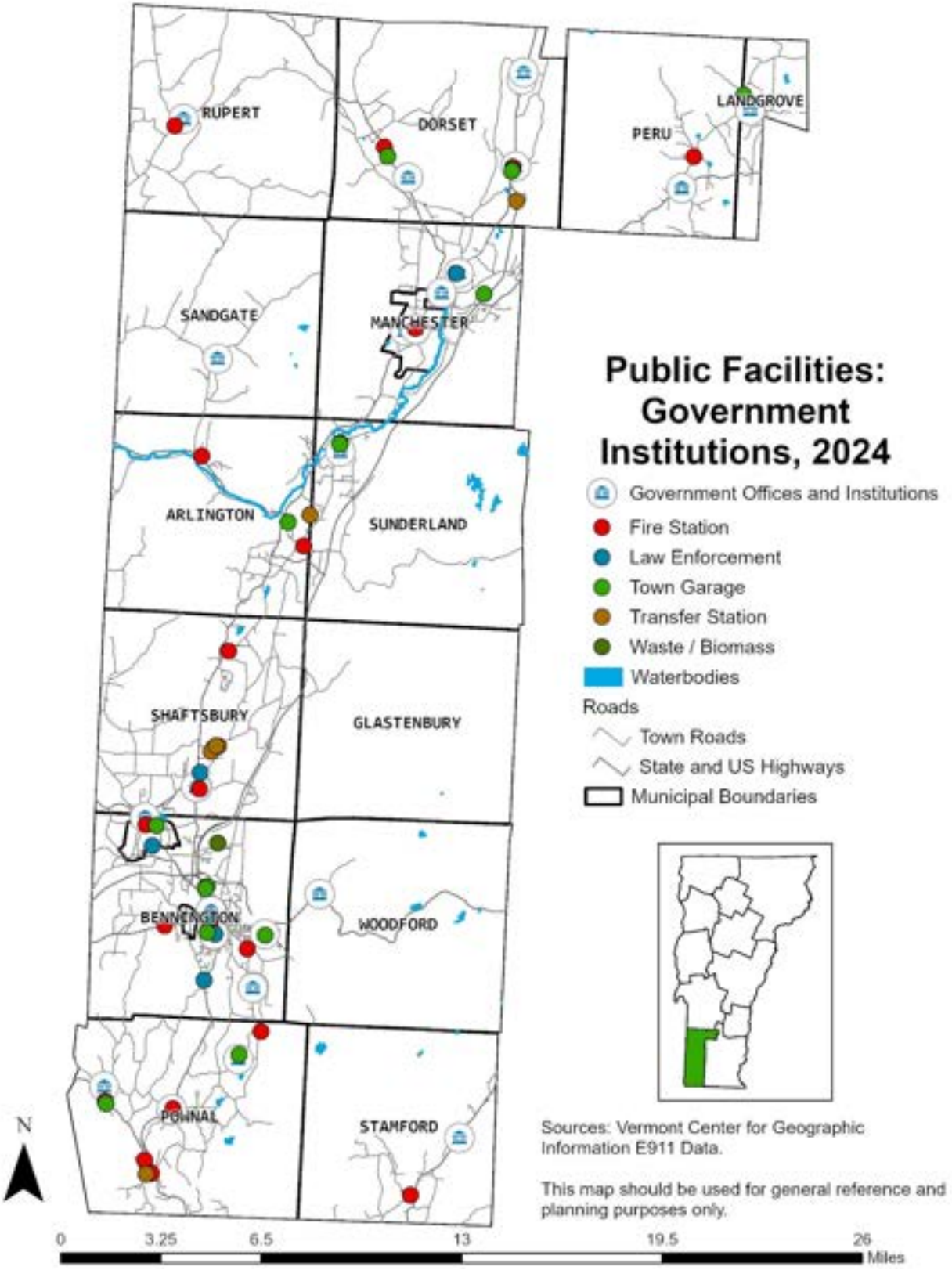
other health care providers in implementing the Vermont Blueprint for Health and support innovative service delivery and financing systems will advance this goal. Ensure that transportation infrastructure is planned to promote and facilitate active healthy lifestyles.

9. Towns and villages should identify recreational needs and opportunities, develop new facilities as appropriate, and work to minimize barriers to access to those facilities.
10. Important public buildings and lands should be maintained and require that any new or expanded municipal, state, or federal buildings are located in downtowns or village centers.
11. The BCRC should continue to assist with the preparation of local emergency management plans and hazard mitigation plans, play an active role on the Regional Emergency Management Committee, and serve as a liaison between municipalities and state agencies - providing information and damage reports during emergencies.
12. Municipalities should identify vacant lots, fields, and properties that could be used for community gardens, farmers markets, or recreational activities for local residents.

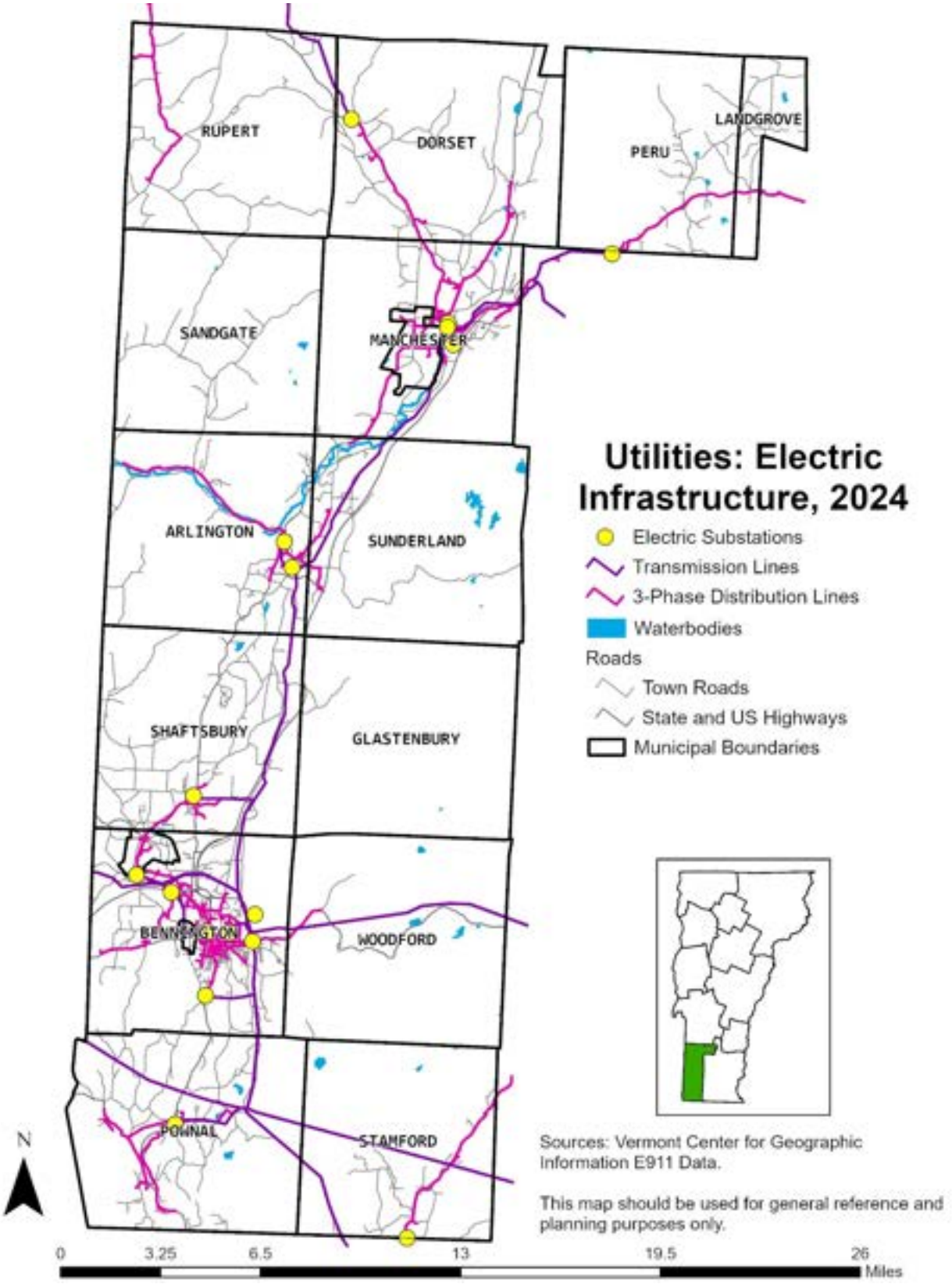
Map 12-1. Municipal Water and Wastewater Services Cin the Bennington Region.



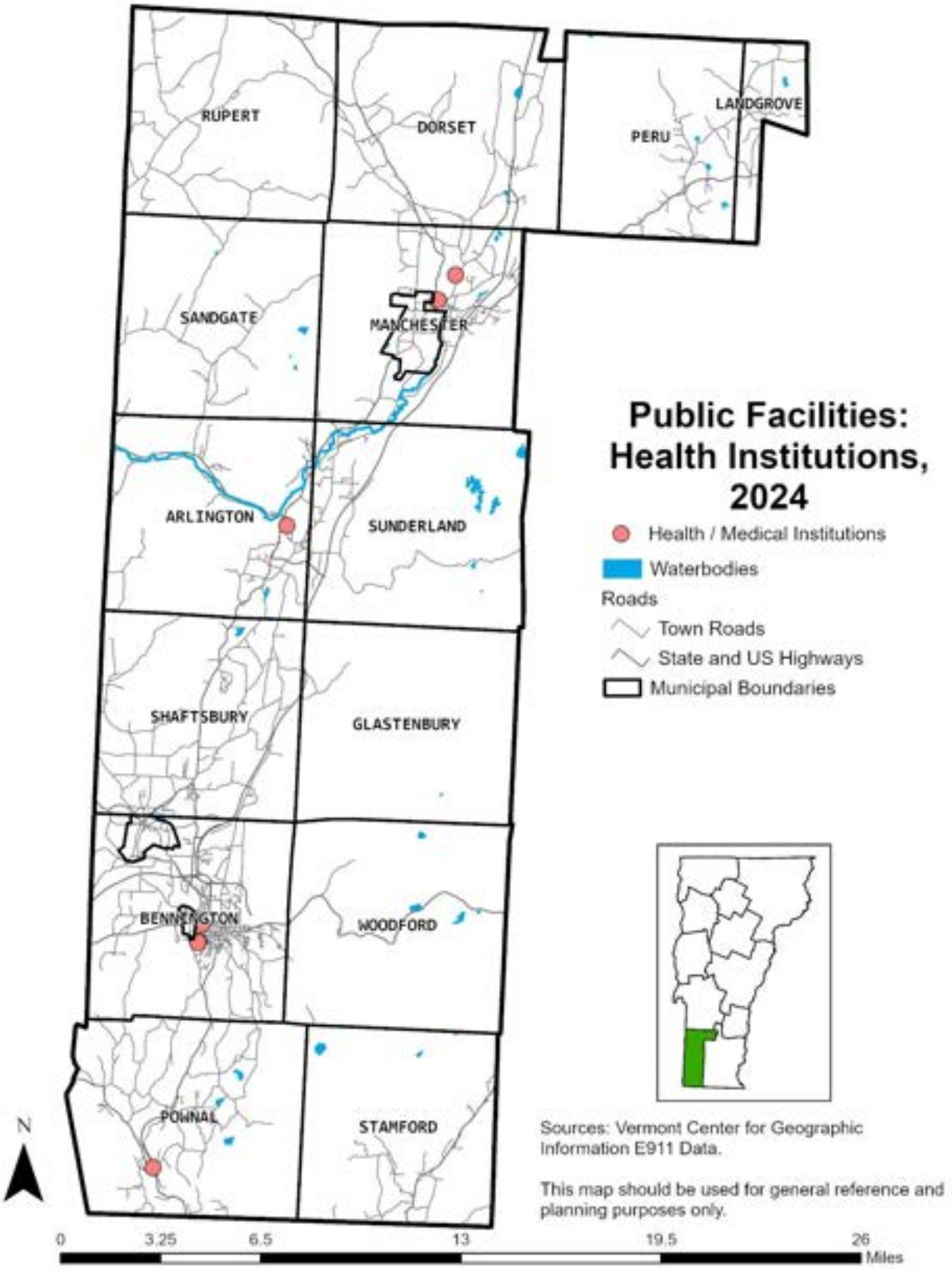
Map 12-2. Government Facilities in the Bennington Region.



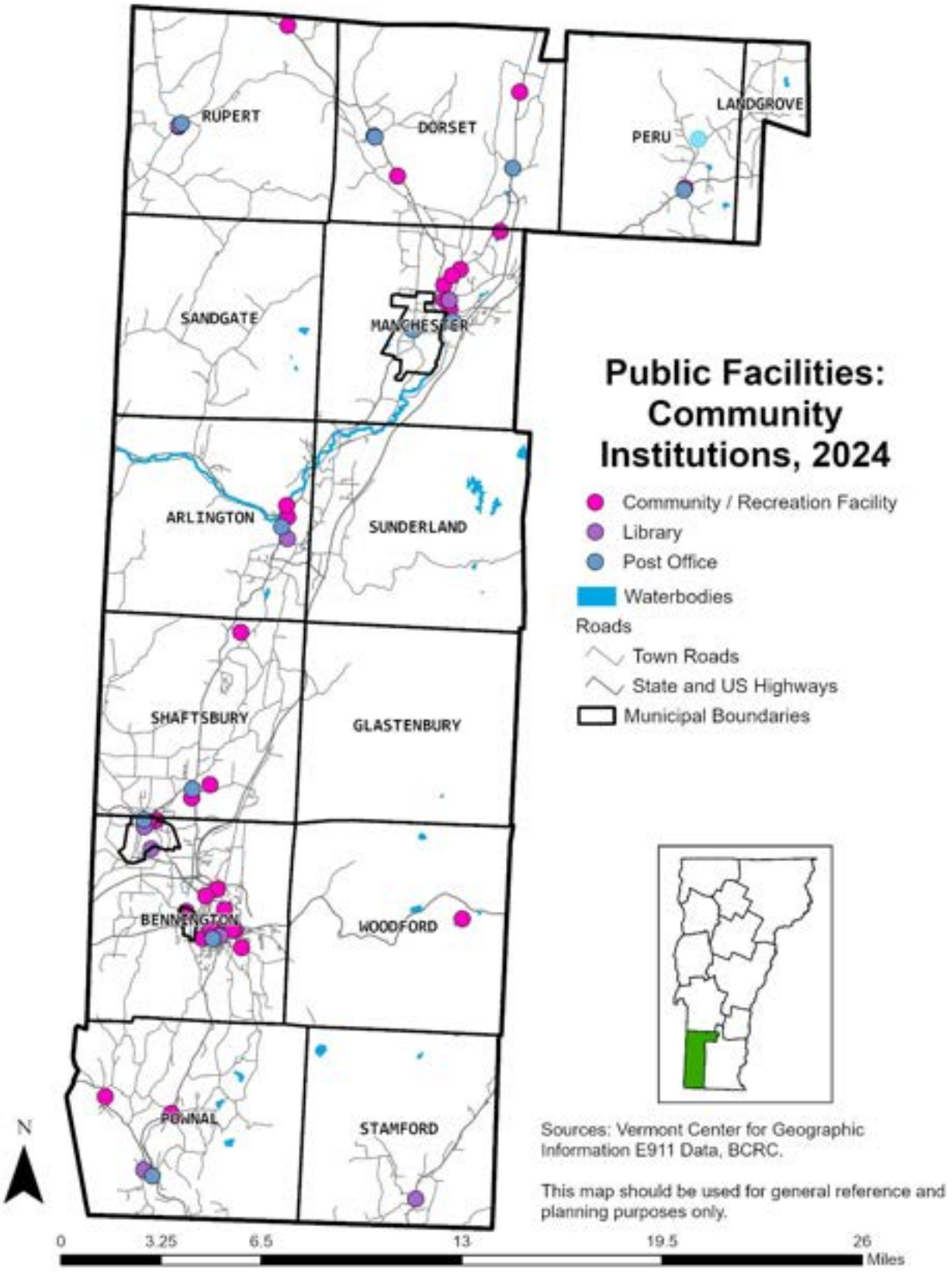
Map 12-3. Electrical Transmission Infrastructure in the Bennington Region.



Map 12-4. Health Care Facilities in the Bennington Region.



Map 12-5. Recreation, Library, and Postal Facilities in the Bennington Region.



13 ENERGY

This chapter of the regional plan constitutes the BCRC Energy Plan. BCRC's energy plan aims to guide the region's energy development for the next eight years in support of Act 174, aligning with Vermont's 2022 Comprehensive Energy Plan (CEP), and Vermont's 2021 Climate Action Plan. To meet state energy and climate goals, Vermont is planning for a major shift away from fossil fuels in the transportation and heating sectors to renewable sources of energy, efficiency in all sectors, and increase in-state renewable energy generation. Equity and justice must be integrated into all aspects of the energy planning and policy process; and as regional goals, objectives and actions are considered and implemented, the decision-making process will be guided by the following questions:

1. Who is helped/who benefits from the policy or objective?
2. Who is harmed by the policy or objective?
3. Who is missing from the conversation on the policy or objective?

This energy element of the Bennington Regional Plan is intended to provide residents and municipal officials with information and strategies needed to plan for an energy future that maintains a vibrant community as the energy sector evolves to reduce consumption and lower costs. This energy plan promotes energy conservation, conversion to more efficient technologies, and local renewable energy development, all of which will better protect the environment and strengthen the local economy.

What is a BTU?

A BTU, or British Thermal Unit, is a measure of energy value or heat content.

One BTU is the amount of heat required to raise the temperature of one pound of water by one degree Fahrenheit at a constant pressure of one atmospheric unit.

1 MBTU = 1,000 BTU

1 MMBTU = 1,000,000 BTU

Much of the data presented in this plan comes from Low Emissions Analysis Platform (LEAP) model projections. The LEAP model is a tool used by the State of Vermont to analyze and project energy demand across multiple sectors at the state and regional levels for the years 2015-2050. The projections come from the Vermont Pathways Model, a specific model within the LEAP model that was developed by the Vermont Department of Public Service and the Stockholm Environmental Institute. The LEAP projections for each sector include two scenarios: baseline energy demand and a "CAP Mitigation" energy demand. The baseline scenario, or business-as-usual scenario, was developed to estimate regional energy demand under normal policy and programmatic conditions. The Climate Action Plan (CAP) Mitigation scenario was

developed to estimate energy demand needed to meet the state's greenhouse gas reduction requirements. The CAP Mitigation scenario is consistently used throughout this plan – more information on the LEAP data can be found in Appendix A.

13.1 Vermont Policy Framework and Regional Energy Policies

This energy plan is consistent with the following state goals and requirements:

- Greenhouse gas (GHG) reduction requirements under 10 V.S.A. § 578(a)
  - 26% reduction from 2005 levels by 2025
  - 40% reduction from 1990 levels by 2030
  - 80% reduction from 1990 levels by 2050
- The 25 x 25 goal for renewable energy under 10 V.S.A. § 580
  - 25% in-state renewables supply for all energy uses by 2025
- Building efficiency goals under 10 V.S.A. § 581
- State energy policy under 30 V.S.A. § 202a and the recommendations for regional and municipal planning pertaining to the efficient use of energy and the siting and development of renewable energy resources contained in the State energy plans adopted pursuant to 30 V.S.A. §§ 202.
- The distributed renewable generation and energy transformation categories of resources to meet the requirements of the Renewable Energy Standard under 30 V.S.A. §§ 8004 and 8005
- Meeting 90% of our energy needs with renewable sources by 2050.

EEP Framework:

In addition, BCRC's Energy Plan aspires to follow the overarching goals and principles detailed in the Energy Equity Project (EEP) Framework and the policies of the Vermont Environmental Justice Law or Act 154 of 2022.

- Everyone has continuous access to energy.
- Everyone lives in a healthy, safe, and comfortable home.
- No one spends more than 6% of their income on energy bills.
- Those who are most impacted have the most powerful voice in decision making and receive a share of benefits.

Vermont Environmental Justice Law:

> *"It is the policy of the State of Vermont that no segment of the population of the State should, because of its racial, cultural, or economic makeup, bear a disproportionate share of environmental burdens or be denied an equitable share of environmental benefits. It is further the policy of the State of Vermont to provide the opportunity for the meaningful participation of all individuals, with particular attention to environmental justice focus populations, in the development, implementation, or enforcement of any law, regulation, or policy" (3 V.S.A. § 6003).*

Accordingly, this energy plan includes a focus on improving the outcomes for **environmental focus justice populations**, as defined by Act 154, meaning "any census block group in which: (A) the annual median household income is not more than 80 percent of the State median household income; (B) Persons of Color and Indigenous Peoples comprise at least six percent or more of the population; or (C) at least one percent or more of households have limited English proficiency."[45] Priority populations also include older Vermonters, people with disabilities and renters. For more information about the environmental justice focus populations, and which parts of the region meet the definition, see the EJFP Fact Sheet and Visual Aids.

Climate Council Principles:

This plan also follows the guidelines established by the State of Vermont Climate Council's Guiding Principles for a Just Transition. As such energy planning, policies, and strategies should be developed with the following principles in mind:

- They involve inclusive, transparent, and innovative engagement.
- They are accountable and restorative.
- They are developed and implemented at the speed of trust.
- They recognize all traditions and cultures within our communities.
- They tackle the needs of most impacted first and strategies are targeted to account for different sociocultural and economic realities of different groups.
- They explicitly support workers, families, and communities.

[45] This definition is subject to review and possible revision every five years.

Under this framework, the following constitute the energy policies of the Bennington region:

1. The BCRC energy program will work with regional partners to reduce regional energy consumption while maintaining a high quality of life for all residents.
2. The BCRC will help to guide careful development of renewable energy to help protect environmental quality and human quality of life.
3. The BCRC will encourage and facilitate energy conservation in residential, commercial, industrial, public, institutional, natural resource, and transportation sectors.
4. The BCRC will work to increase opportunities to make energy choices at the local level and empower vulnerable and disadvantaged community members to have a voice in decision-making.
5. The BCRC will work to assure diversity in the mix of energy sources to minimize the impacts of supply restrictions and price volatility.
6. The BCRC energy program will work to decrease reliance on non-local energy sources within the region through conservation, efficiency, and the development and use of local renewable energy sources.
7. The BCRC will work to empower communities within the region to make energy choices that minimize impacts to the environment and equitably distribute benefits and burdens.
8. The BCRC will work to ensure both an adequate supply of electricity and a secure distribution network to meet the region's needs.
9. The BCRC will work to promote a local wellbeing economy in which personal choices that are consistent with future energy realities.
10. The BCRC will work to assure that everyone has the opportunity to participate in the clean energy transition and to make sustainable lifestyle choices.

13.2 Current and Future Energy Demand

With a population of just over 35,000 residents housed mostly in single family homes, the Bennington region consumes a large amount of energy every year to meet its transportation, space heating, and electricity needs. Figure 13-1 shows regional energy use by sector (more information about the calculation of regional energy use can be found in Appendix A). Energy for residential heating and cooling makes up the largest share of regional energy use. As shown in Figure 13-2, according to the LEAP model, in 2015 the Bennington region used more than 5,600 thousand million British Thermal Units (MMBTU). Figure 13-2 also illustrates one path the region can pursue to achieve energy targets through gradual adaptation and fuel switching over the next few decades.

Figure 13-1. Regional Energy Use by Sector in MMBTUs. Data from Vermont Public Service Dept., Municipal Consumption Tool (2021-2022 ACS 5-year estimates) and Efficiency Vermont (2023 data). Electricity used for heating, cooling, and transportation is included in the residential electric sector.

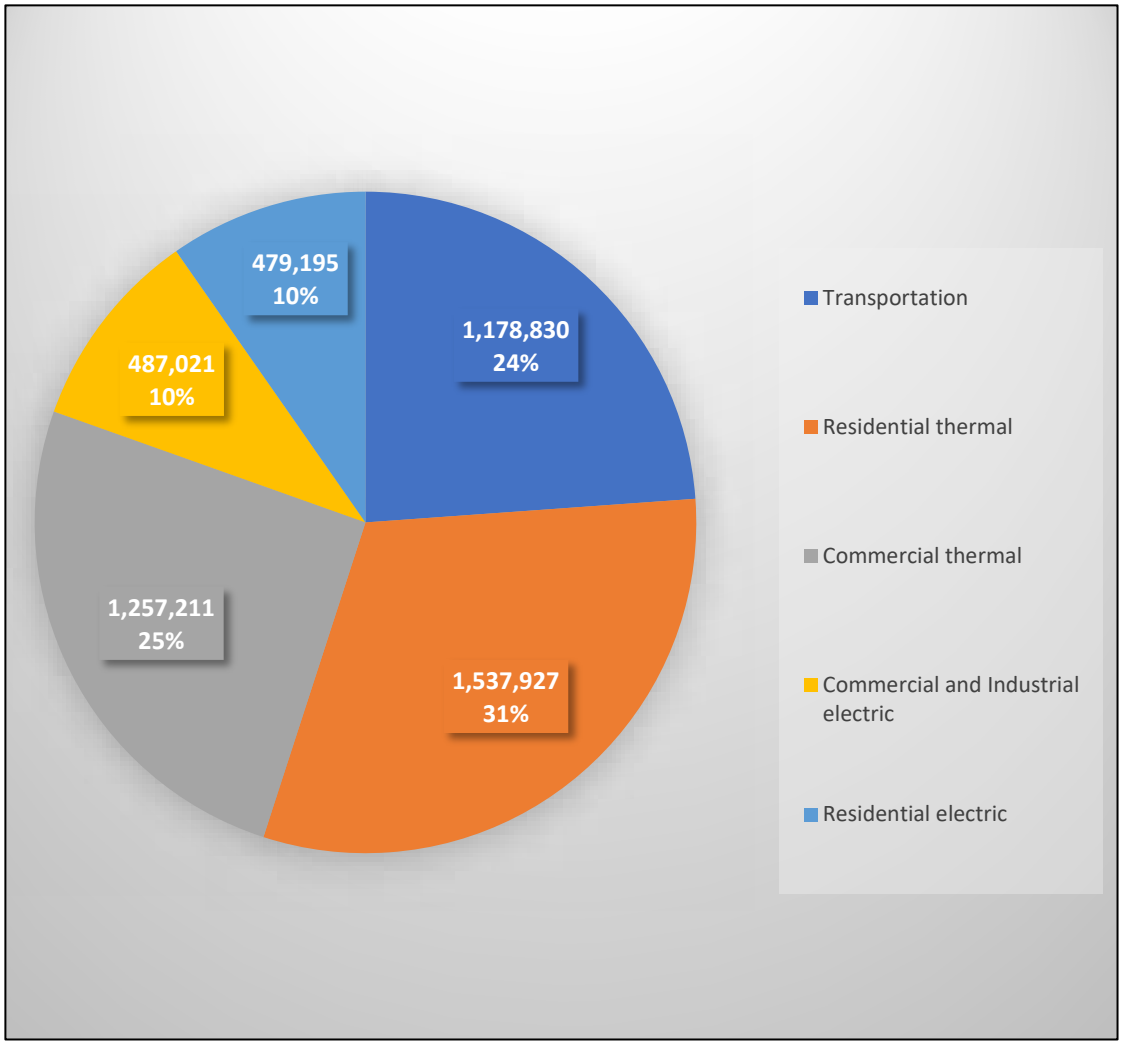
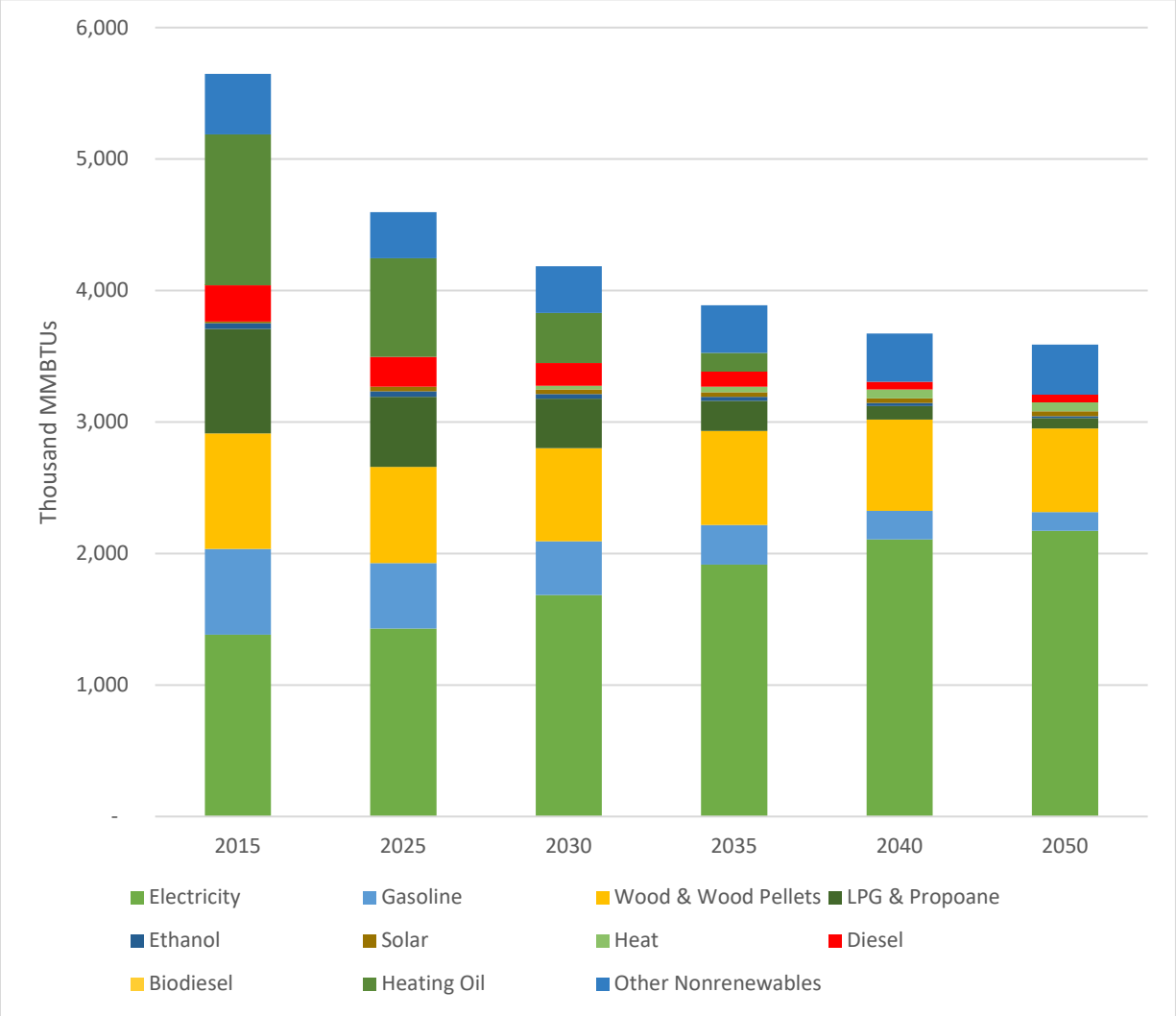


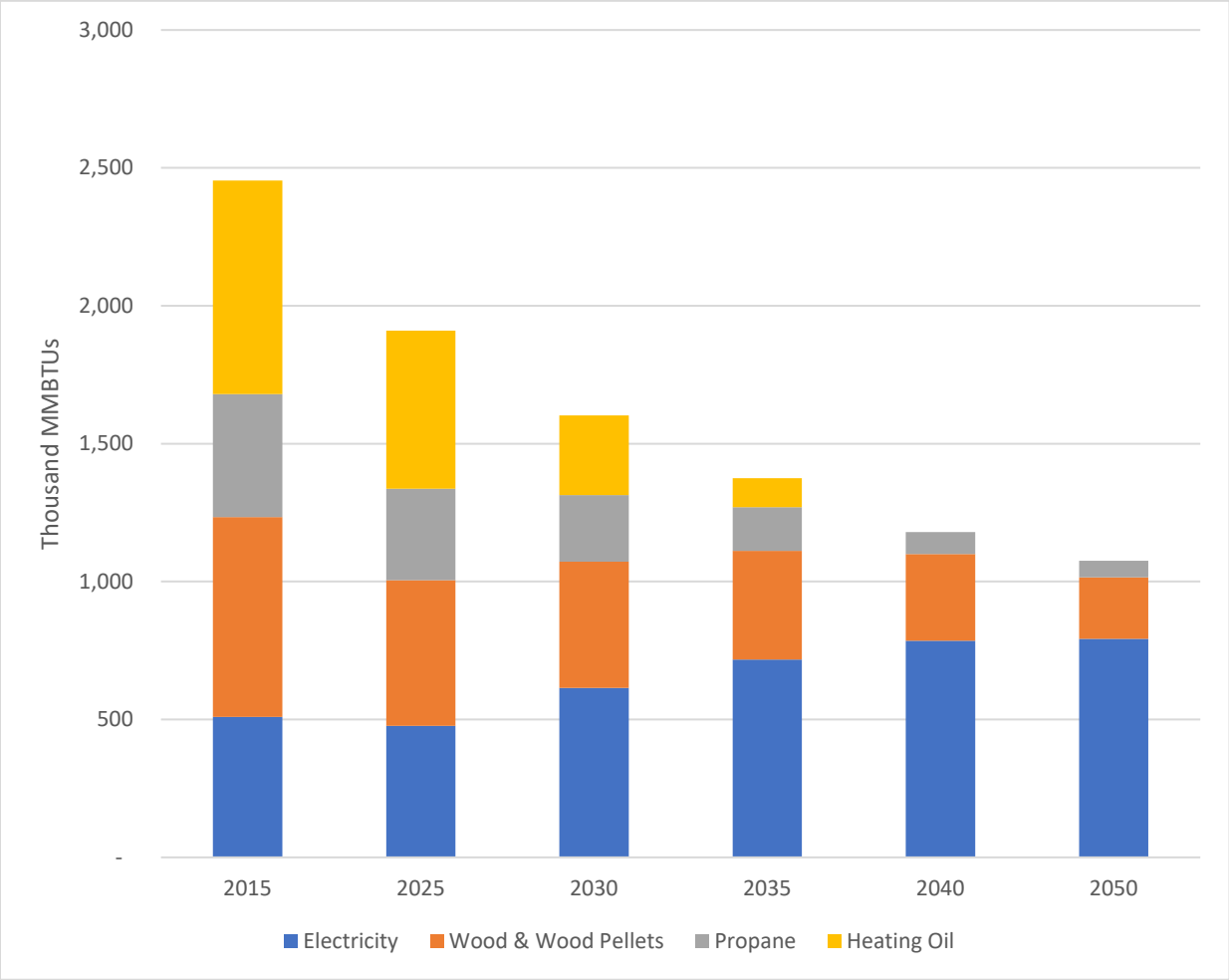
Figure 13-2. Total Energy Demand by Fuel Type in the Bennington Region. From CAP Mitigation LEAP Projections, 2024.



13.2.1 Residential Energy Use

The Bennington region's more than 35,000 residents consume energy for transportation, space and water heating, and powering lights and appliances. By identifying technologies and practices capable of catalyzing the transformation of each energy sector, this energy plan provides the region with the tools necessary to realize the state's energy goals. Figure 13-3 illustrates how residential energy use could change over the next several decades to meet state energy and emissions goals. Under this scenario, residential energy use would decrease by more than 50% with increased efficiency, growing electricity and biodiesel use, and a phasing out of fossil fuel use.

Figure 13-3. Total Residential Energy Demand by Fuel Type for the Bennington Region. Source: CAP Mitigation LEAP projections.



A. Energy Burden

One strategy for improving environmental justice and equity is reducing energy burden, Energy burden is defined as the proportion of household income spent on energy costs. The 2023 Vermont Energy Burden Report indicates the Bennington region's average energy burden is around 10% (see Table 13-1), slightly less than the state average energy burden of 10.6%. Nationally, an energy burden greater than 6% is considered high and is correlated with a "greater risk for respiratory diseases, increased stress and economic hardship, and difficulty in moving out of poverty" according to the American Council for an Energy-Efficient Economy (ACEEE) The ACEEE "develops transformative policies to reduce energy waste and combat climate change" and reports energy burden data, with particular focus on disproportionately affected Black, Hispanic, and Native American households.

According to a 2021 study by researchers at the University of Vermont, energy expenses disproportionately hurt Vermonters who are rural, lower-income, non-white,

and non-homeowners.[46] It is also important to note how energy spending often competes with other basic needs such as housing, healthcare, and food. According to the Energy Action Network's Annual Progress Report for Vermont 2023, "households with lower incomes are disproportionately dependent on two of the highest-cost heating sources: fuel oil and inefficient resistance electric systems." Furthermore, lower-income households are more likely to rent or own older homes, which in turn are less efficient and more expensive to heat and cool according to weatherization information provided by the Vermont Housing Finance Agency (VHFA).

Table 13-1. Energy Burden by Town in the Bennington region. Energy burden reported as Lowest, Low, Moderate, or High as defined by threshold in the report.
Source: Efficiency Vermont, 2023 Vermont Energy Burden Report
(No data available for Glastenbury or Landgrove)

Town	Energy Burden	Level
Arlington	8.3%	Low
Bennington	10.8%	Moderate
Dorset	11%	Moderate
Manchester	9%	Low
Peru	7.2%	Lowest
Pownal	10.8%	Moderate
Rupert	12.1%	High
Sandgate	11.3%	Moderate
Shaftsbury	7.6%	Lowest
Stamford	9.1%	Low
Sunderland	9.7%	Low
Woodford	11.9%	Moderate

In Bennington County, approximately 26% of households rent their homes (2022 US Census ACS 5-year estimate). Renters are often subject to what is known as the split incentive, where landlords are responsible for the heating system and weatherization of the building, but the tenant is responsible for the utility bill. This may disincentivize the landlord to make efficiency improvements to the building that would lead to greater comfort and reduced heating costs for the tenant.

As Vermont continues the energy transition to meet its renewable energy goals and the requirements of the Global Warming Solutions Act, it is important to remember that the transition will not impact all Vermonters equally. Despite various state incentives, many clean energy technologies are out of reach to Vermonters with low-incomes or who rent their homes. Many Vermonters simply cannot afford to switch out a fossil fuel furnace with an electric heat pump or purchase an electric vehicle due to the high upfront cost. Renters of all incomes typically have limited control over the energy

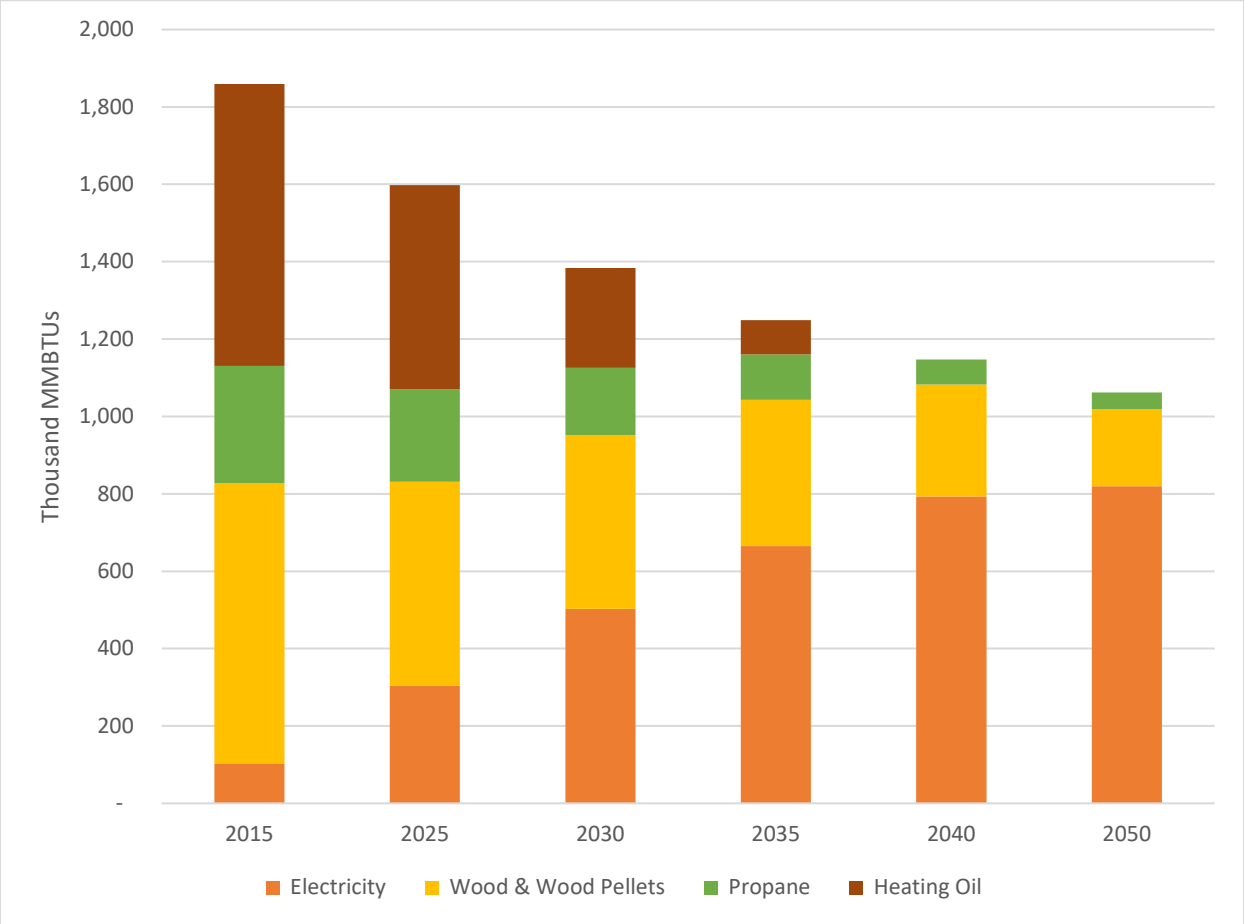
[46] Keady, Panikkar, Nelson and Zia. Energy justice gaps in renewable energy transition policy initiatives in Vermont. **Energy Policy** 159(2021)0112608.

efficiency improvements they can make to their homes, even if they can afford those measures.

B. Thermal

Residential thermal energy demand comprises a significant portion of total residential energy demand. Therefore, to reduce overall residential energy demand in the region, implementing thermal energy conservation and efficiency measures will be especially important. Figure 13-4 shows one path the region could take to reduce its residential thermal energy demand by increasing the electrification of space heating and reducing the use of fossil fuels for heating. Figure 13-5 shows thermal electricity demand broken out by technology.

Figure 13-4. Total Regional Residential Thermal Energy Demand by Fuel Type. From CAP Mitigation LEAP projections.



According to US Census data, 60% of Bennington County homes are heated with oil (Figure 13-6). Although this fuel source has been inexpensive and widely accessible in the past, recent and projected shortages and price volatility of fossil fuels suggest that the region should mitigate reliance on fossil fuel sources by switching to more efficient systems that can be powered by local resources. Switching away from fossil fuels will

also be important for reducing greenhouse gas emissions and mitigating the effects of climate change.

Figure 13-5. Residential Electric Thermal Energy Demand by Technology. From CAP Mitigation LEAP projections.

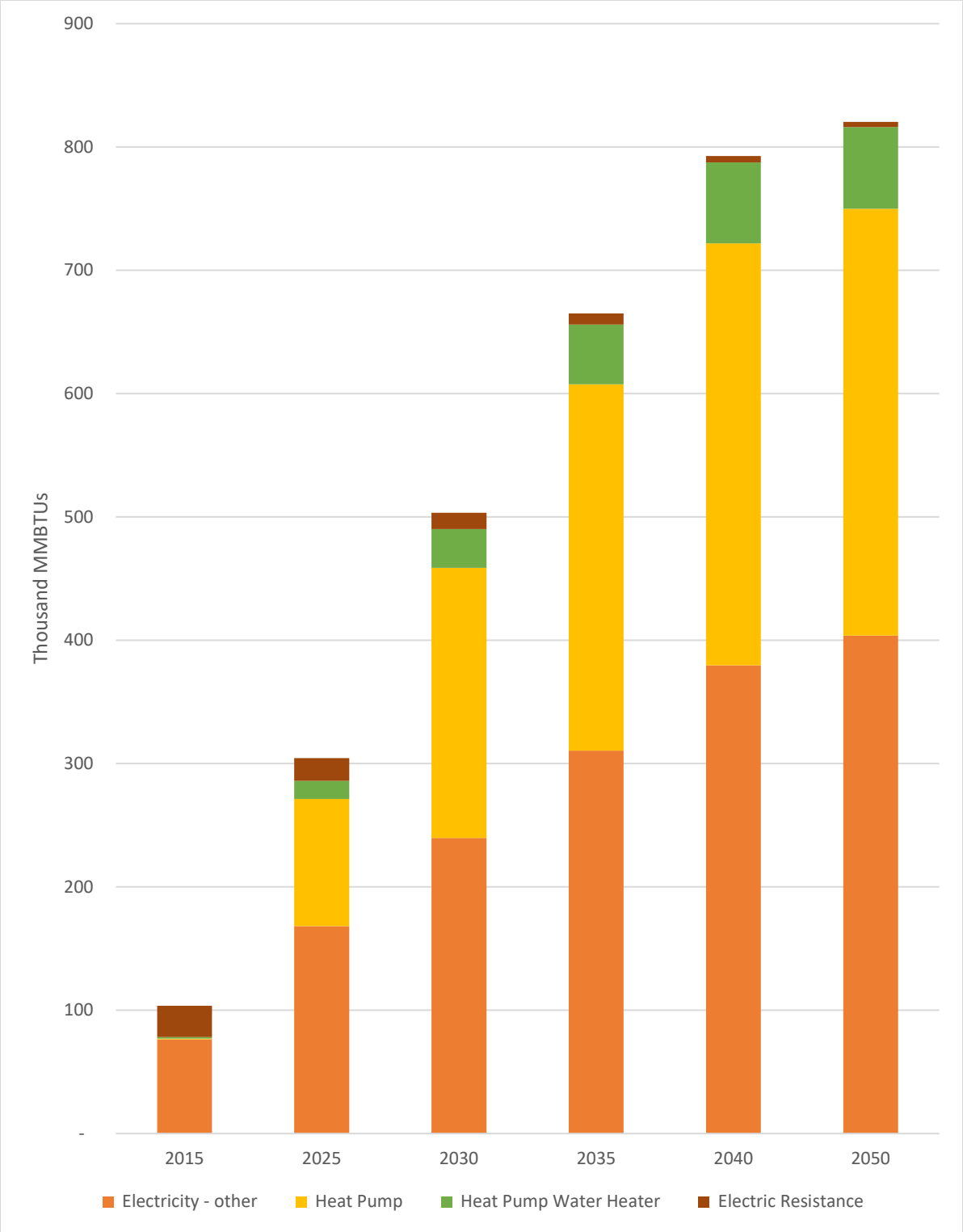
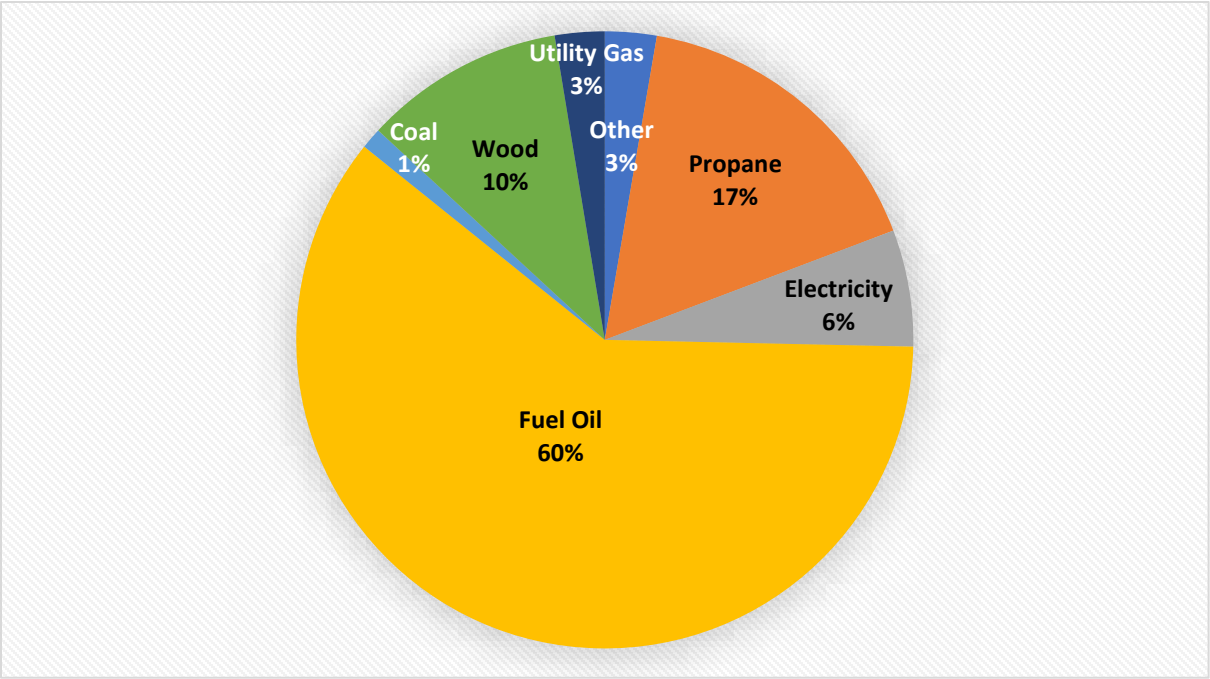


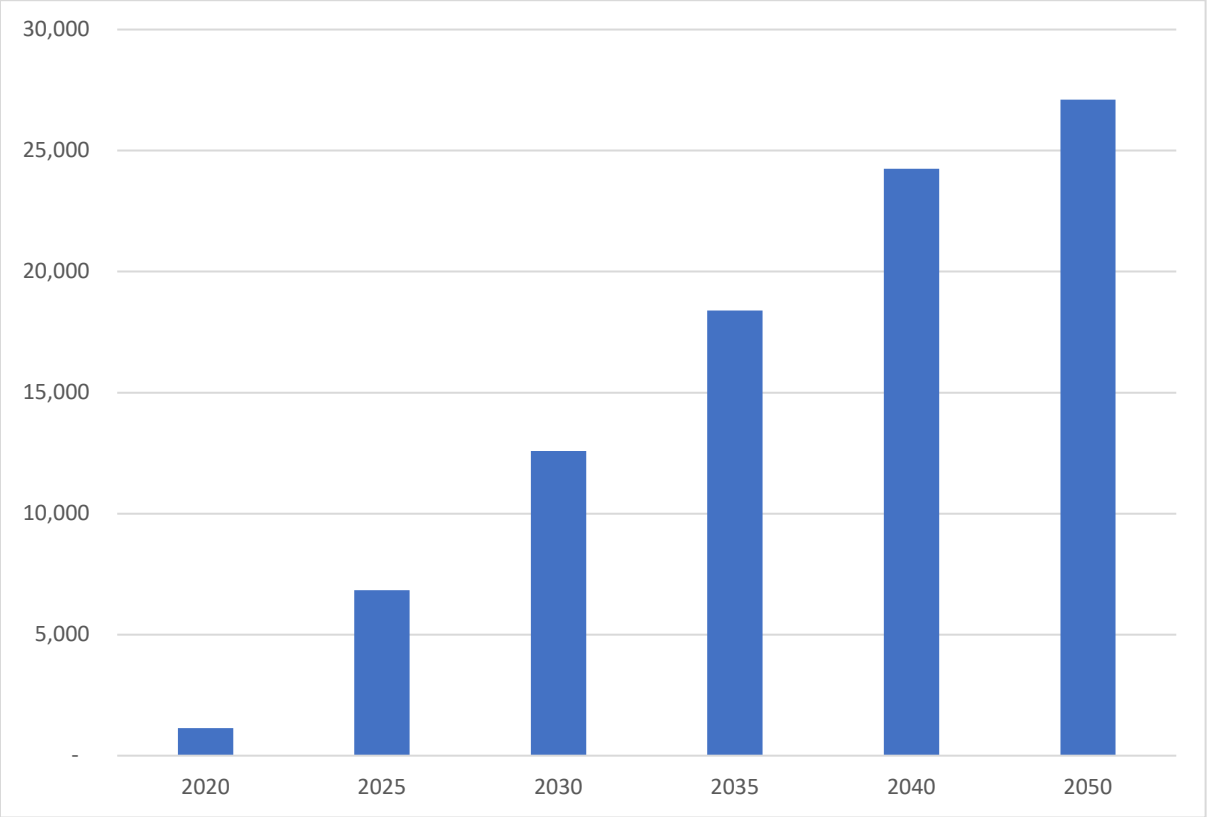
Figure 13-6: Bennington County Household Heating Fuel by Type. Data from 2022 ACS 5-year estimates.



Cold-climate electric heat pumps are a highly efficient technology that will play a major role in lowering overall energy consumption. Cold-climate heat pump technology extracts cold air from ambient space and can be used for both heating and cooling. In addition to being more energy efficient than other heating technologies, heat pumps can also cool homes during the warmer months. As of 2023, 3,283 heat pumps had been installed in the Bennington region (Vermont Energy Dashboard, EAN and Efficiency VT data). To meet 2050 goals, electric heat pumps should be adopted in accordance with the following target counts: **6,841 heat pumps in use by 2025; 12,591 by 2030; 24,245 by 2040; and 27,104 by 2050** (Figure 13-7).

Gradually switching thermal systems to more efficient electric options would do much to improve energy efficiency, but thermal conservation gains will also rely on extensive weatherization of existing homes and adherence to building energy codes for new construction. The following household weatherization targets should guide efforts in the Bennington region: **4,951 households weatherized by 2025; 8,496 by 2030; 10,700 households by 2035; 12,903 households by 2040; and 17,310 households by 2050 (**data from CAP Mitigation LEAP projections)**.** As of 2023, there have been 2,300 weatherization projects in Bennington County (Vermont Energy Dashboard and Efficiency VT), which means that a significant ramp up of these projects will be needed to meet the first 2025 benchmark goal.

Figure 13-7: Bennington Region Residential Heat Pump Targets. Projected cold climate heat pump uptake in the Bennington region in line with state energy goals. From CAP Mitigation LEAP projections.



13.2.2 Commercial Energy Use

There are over 1300 commercial buildings in Bennington County that consume energy for transportation, space and water heating, and powering lights and appliances. The CAP Mitigation LEAP scenario projects that commercial energy use will decrease through conservation and adoption of more efficient technologies, but the decrease will not be as substantial as in the residential sector (Figure 13-8.) In addition, cold-climate electric heat pumps will play a major role in lowering overall energy consumption in the commercial sector as well as the residential sector. Figure 13-9 shows projected adoption of cold climate heat pumps in the commercial sector.

Energy conservation goals will also be realized by extensive weatherization of commercial buildings. The following commercial building weatherization targets should guide efforts in the Bennington region**: 279 buildings by 2025; 636 buildings by 2035; 100% of commercial buildings by 2050** (targets derived from the Vermont Public Service Department Analysis and Targets Tool). BCRC will work with commercial and industrial operations in the region to implement these energy conservation measures and transition to clean and renewable energy sources.

Figure 13-8. Commercial Energy Demand by Fuel Type in the Bennington Region, 2015 to 2050.
From CAP Mitigation LEAP projections

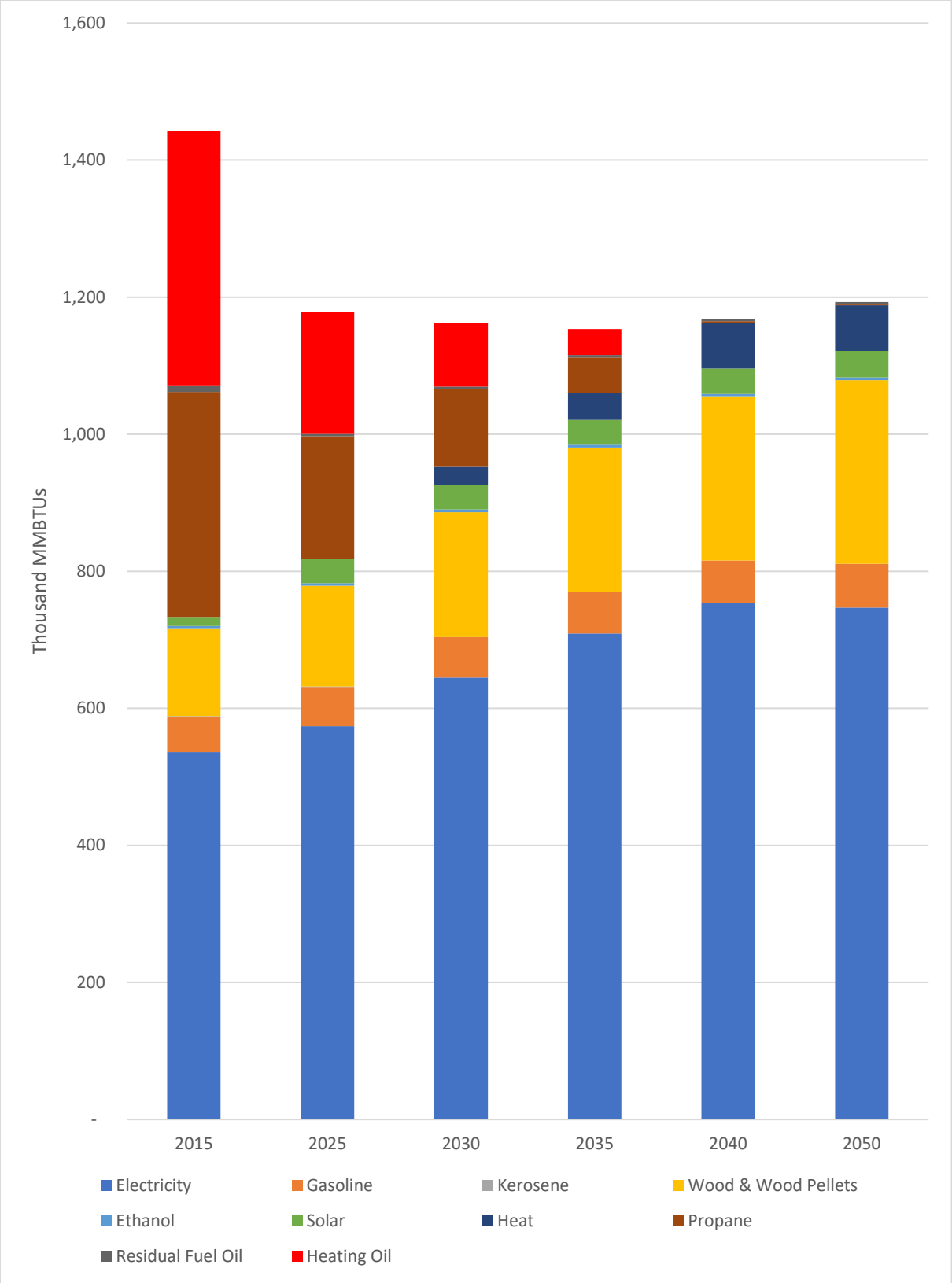
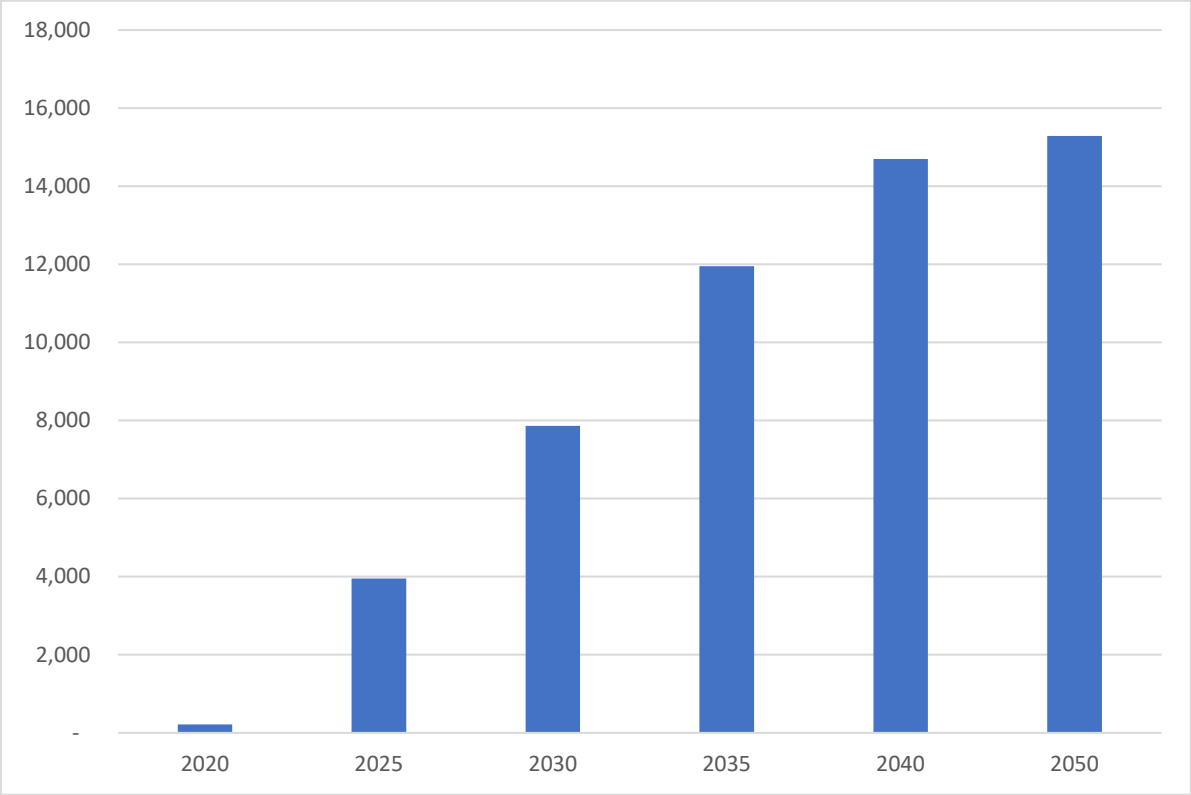


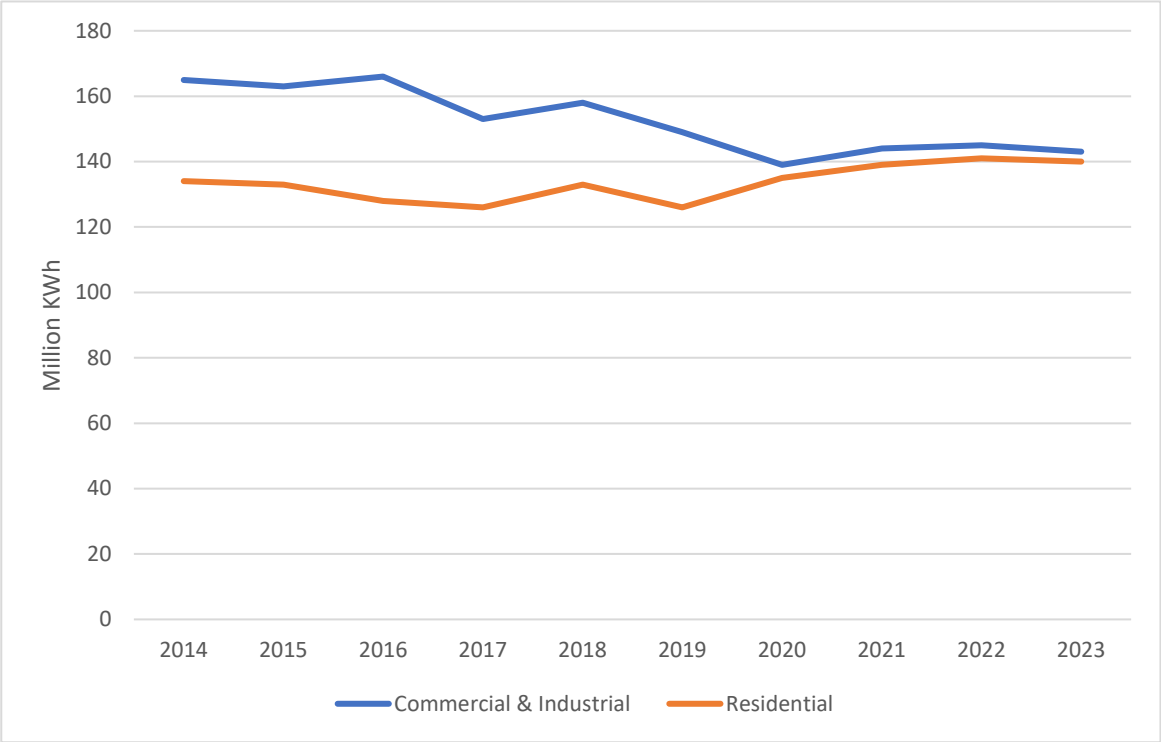
Figure 13-9: Commercial Heat Pump Targets for the Bennington Region. Projected cold climate heat pump uptake in the Bennington region in line with state energy goals. From CAP Mitigation LEAP projections.



13.2.2 Electricity

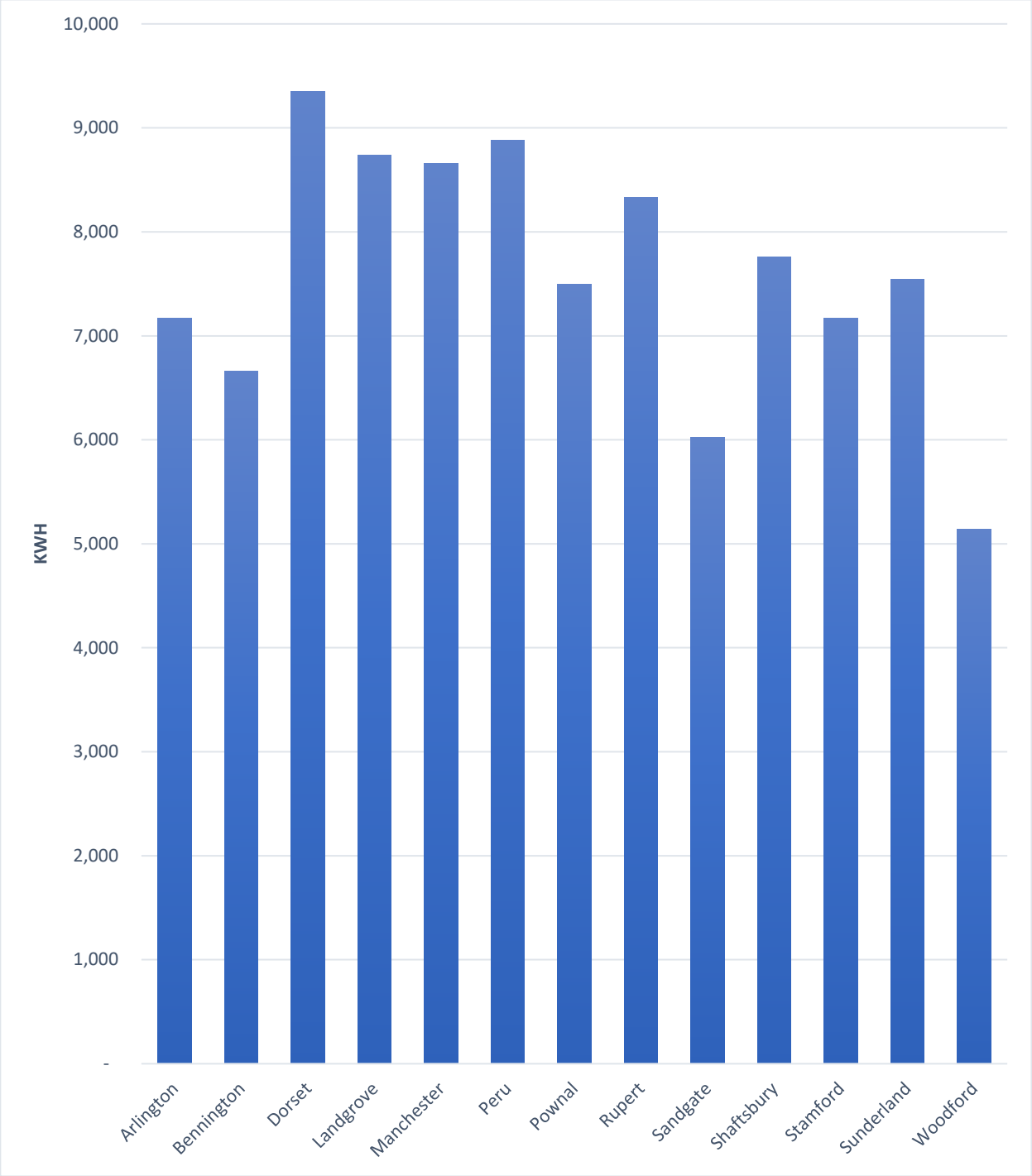
Although technically a conductor of energy and not a source, electricity is referenced here as an energy source since widespread adoption of appliances, vehicles, and thermal technologies powered by electricity are critical to achieving Vermont's energy goals. Current trends suggest that total electric use is increasing in the region's homes and businesses as indicated in Figure 13-10. The trend for both the residential and commercial sectors shows a gradual decrease in electricity usage until 2019 and 2020 respectively, when electricity usage began to gradually increase. This uptick in electricity usage is expected as the sectors transition to electrification of heating and transportation. The uptick in residential electricity usage is also due in part to impacts of the Covid-19 pandemic which has made hybrid and remote work more common.

Figure 13-10. Annual Cumulative Electric Usage in Bennington County for Residential and Commercial/Industrial Sectors, 2014-2023. Data from Efficiency Vermont.



Efficiency Vermont also provides data on household electrical usage by town. Figure 13-11 shows the average annual residential electricity usage from 2014-2022 for all towns in the region. Dorset, Peru, Landgrove, and Manchester, had the highest average residential electricity usage in the region over that period, all with household usage of over 8,000 kilowatt hours (KWH) annually, and Dorset over 9,000 KWH. These towns also have some of the highest median household incomes in the region, and the higher electricity usage may reflect larger homes and more electrical appliances used by higher income households. It might also reflect a higher rate of uptake of electrification – more heat pump and electric vehicle uptake – in these towns. Nonetheless, Rupert also shows annual usage over 8,000 KWH per household. Other factors that may lead to relatively higher electrical usage include a higher proportion of retired residents or a higher portion of remote workers that are at home more throughout the day. Bennington (6657 KWH), Sandgate (6027 KWH), and Woodford (5144 KWH) exhibited the lowest average annual household electricity usage over the 2014-2023 time period.

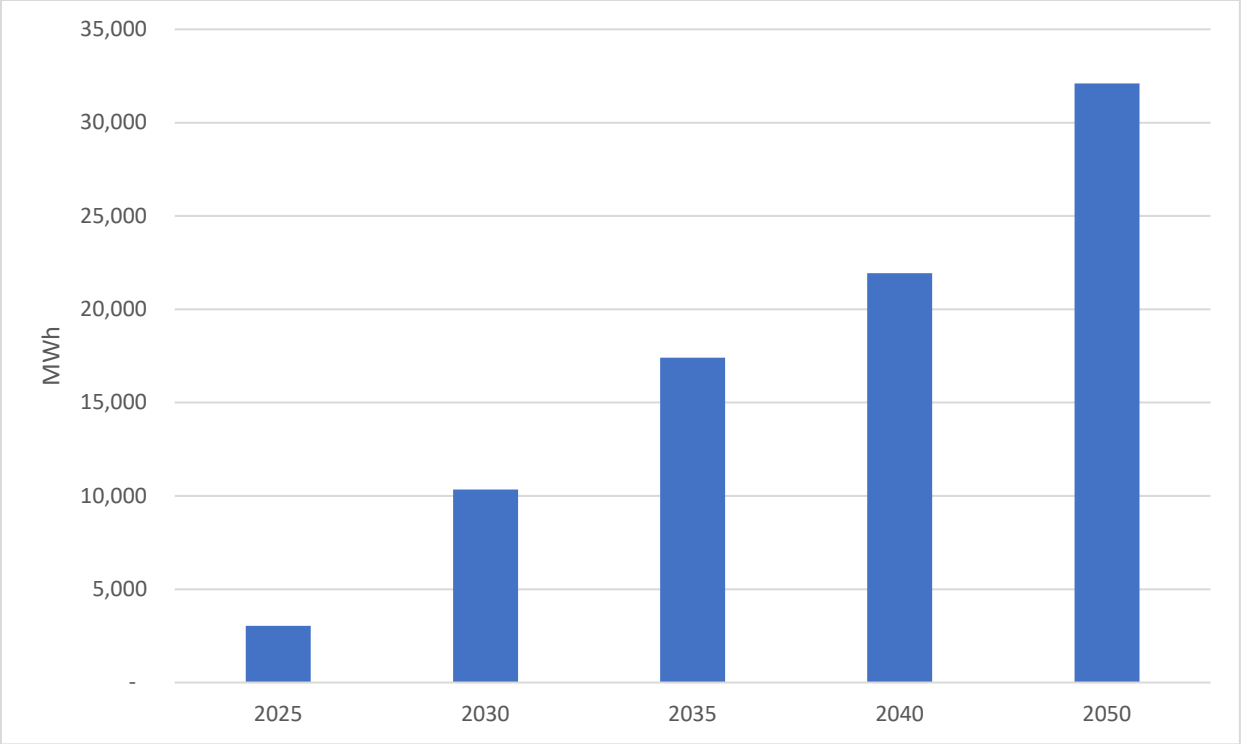
Figure 13-11. Average Annual Residential Electric Usage in the Bennington Region by Town from 2014-2023. Data from Efficiency Vermont.



Again, an increased reliance on electricity will be necessary to transition away from fossil fuels. Although electricity use will initially increase (and has already begun to increase) with the electrification of the heating and transportation sectors, electricity is expected to become more efficient as electric technologies continue to improve and are

adopted. Because electrification trends are expected to outpace demand-side management efforts (*i.e.*, efficiency and conservation programs), electricity demand is expected to increase. However, demand-side efforts to reduce and manage electricity use will be important to mitigate increases and manage the timing of when electricity is needed. Figure 13-12 shows the electric energy savings that are possible to achieve through the implementation of efficiency programs as estimated by the Vermont Public Service Department. For example, by 2050 residents of the region combined could save approximately 32,000 megawatt hours (MWh) of electricity annually through efficiency programs.

Figure 13-12. Cumulative Annual Residential Electricity Savings for the Bennington Region, 2025-2050. Data provided by the Vermont Public Service Department and sourced from the 2022 Energy Efficiency Market Potential Study.



13.2.3 Transportation

Due to the primarily rural nature of the Bennington region, people and goods constantly travel long distances between communities. The light duty vehicle has made this independent mobility and the freedom and access that come with it possible, yet most vehicles rely on fossil fuels to function. Given the dependence most households have on vehicles, transportation represents one of the greatest opportunities to reduce overall energy use.

Figure 13-13: Total Annual Energy Demand for Passenger Cars for the Bennington Region. From CAP Mitigation LEAP projections.

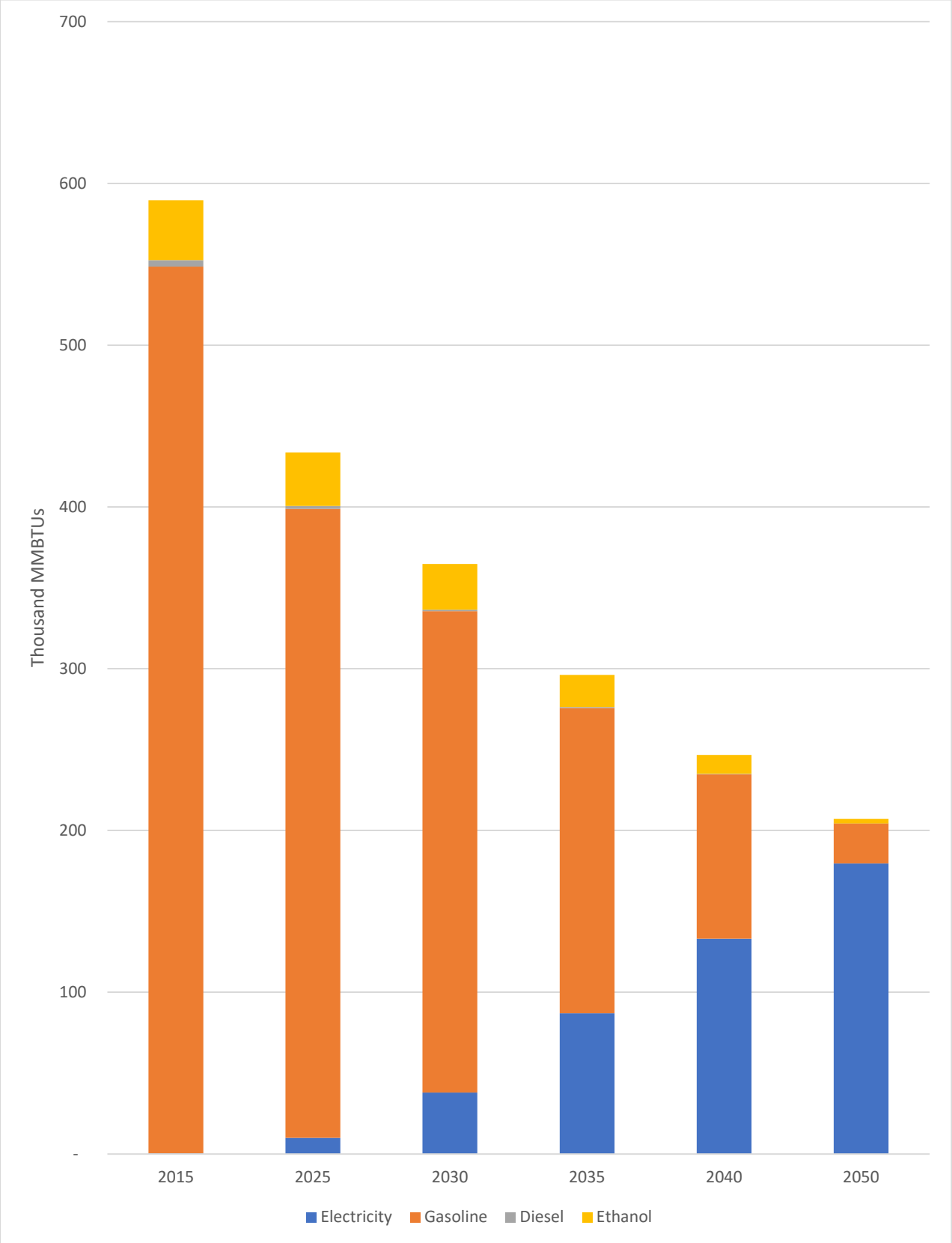
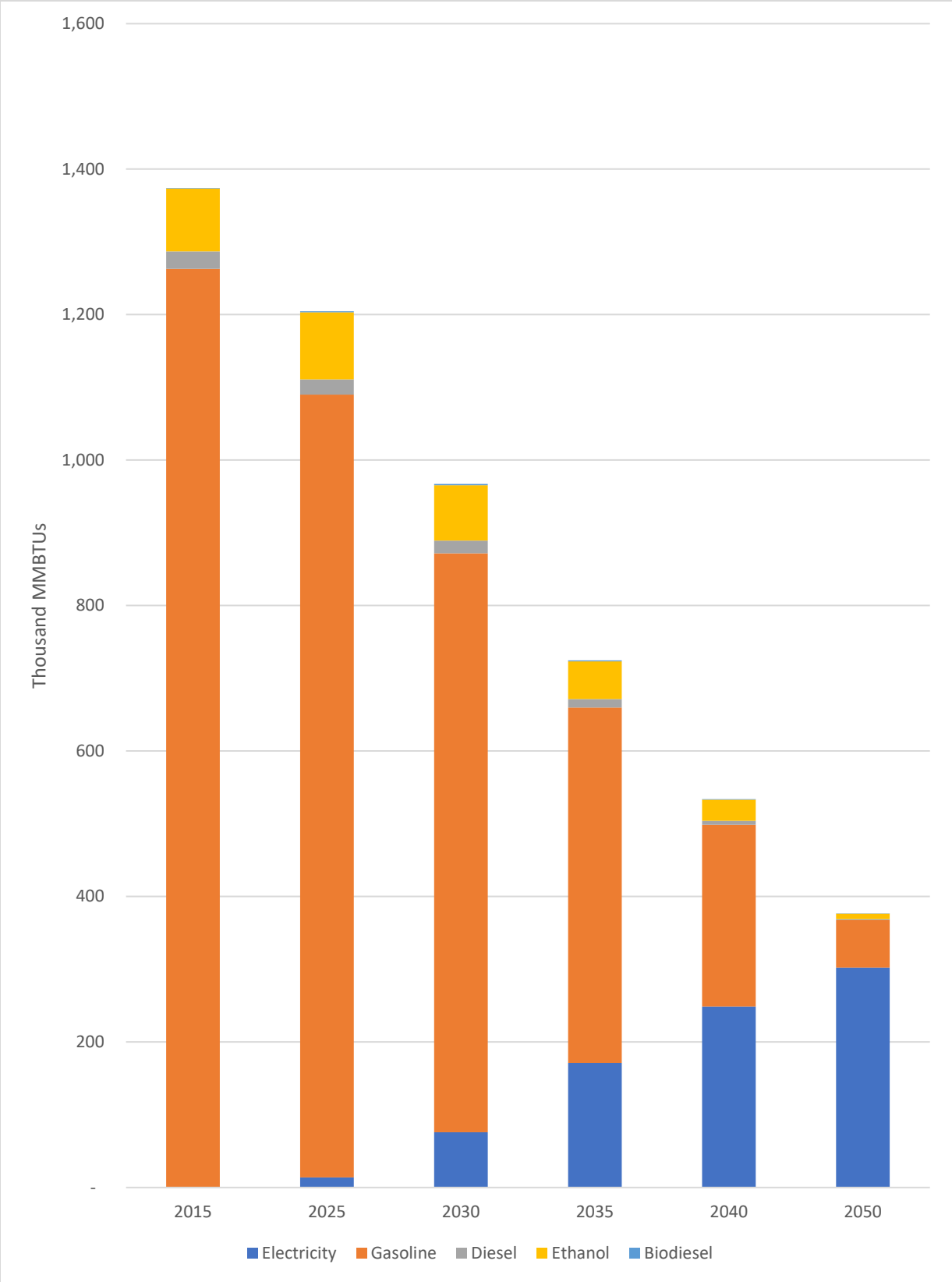


Figure 13-14. Total Annual Energy Demand for Light Trucks for the Bennington Region. From CAP Mitigation LEAP Projections.



Electric vehicle (EV) and plug-in hybrid electric vehicle (PHEV) technologies have advanced significantly in recent years and these systems are projected to dominate the car industry in coming decades. By electrifying the light duty vehicle fleet, which includes passenger cars and light trucks, residents of the region can improve transportation efficiency and divert money currently spent on fossil fuels. Targets for gradually reducing energy consumption by passenger car and light truck use are presented in Figures 13-15 and 13-16. Over the next three decades, total energy demand for transportation is expected to fall gradually to just over one third of 2015 levels, and gasoline use would decrease dramatically. Electrification of the light duty vehicle fleet will account for much of this reduction in energy use.

Figure 13-15. Electric Vehicle (EV) Adoption Targets for the Bennington Region. Source: CAP Mitigation LEAP projections.

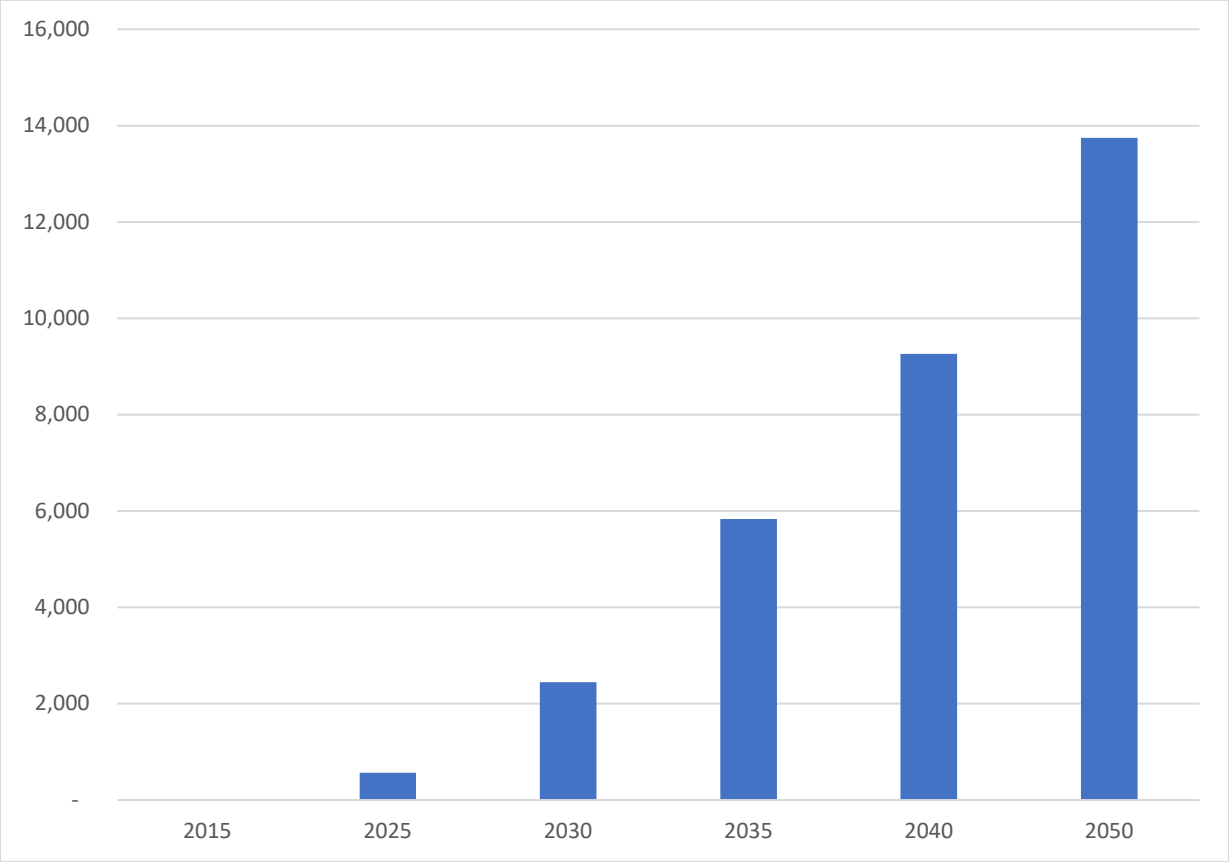
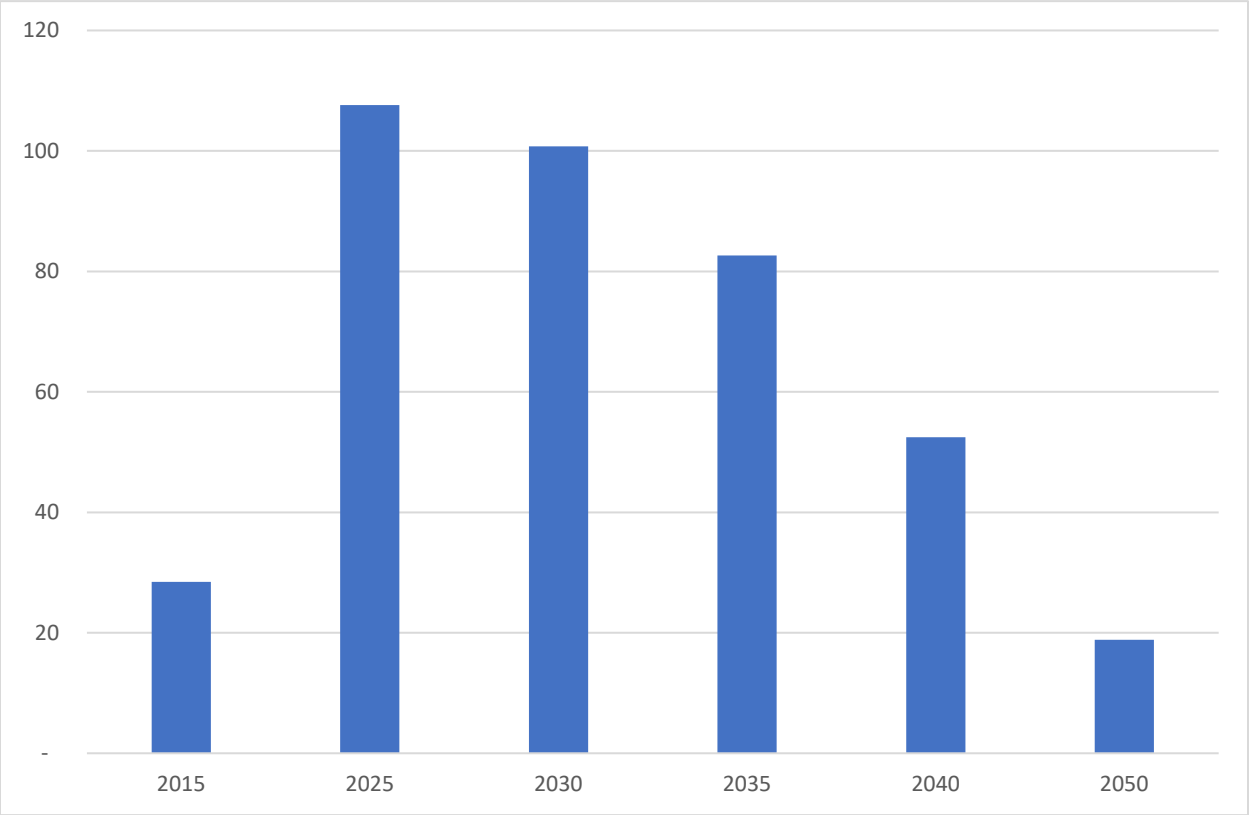


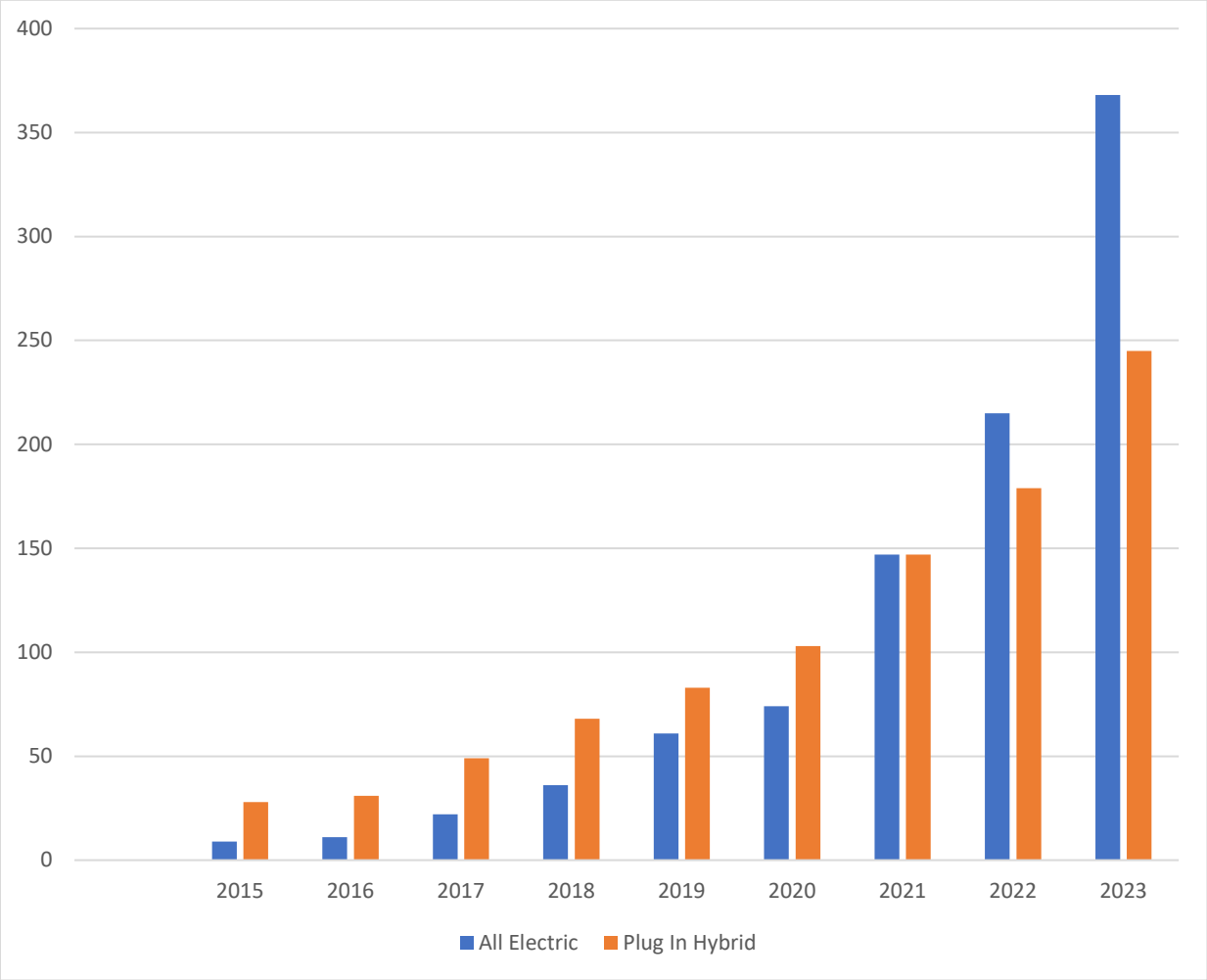
Figure 13-16. Plug-in Hybrid Electric Vehicle (PHEV) Adoption Targets for the Bennington Region.
Source: CAP Mitigation LEAP projections.



The following EV vehicle count targets should guide adoption rates in the Bennington region: **673 EVs by 2025; 2,544 EVs by 2030; 5,919 EVs by 2035; 9,317 EVs by 2040; and 13,764 EVs by 2050** (see Figure 13-13). As of 2023 the region only had 368 registered EVs, and 245 PHEVs, however the number of EVs in the region has been increasing rapidly since 2015 (see Figure 13-17). PHEVs are currently playing an important role in the transition to fully electric vehicles, and the region has already exceeded its 2025 PHEV adoption goal. It appears that uptake of PHEVs may be more important in the region than the LEAP modeling predicts. This may have something to do with the overall rural setting of the region and the relative lack of EV charging infrastructure, which makes EV use difficult for anything but within region commuting, particularly in the winter when range is diminished by below freezing temperatures.

Rapid electrification of the light duty truck fleet will also need to occur to reduce transportation energy use. Accordingly, Figures 13-18a and b show regional adoption targets for light duty trucks. State programs and incentives can help reduce the upfront cost of an EV, but an adequate supply of EV charging infrastructure is a barrier to widespread adoption, especially for people who live in older, rental housing, which is unlikely to provide charging stations.

Figure 13-17. EV and PHEV Registrations in the Bennington Region, 2015-2023. Source: Efficiency Vermont data.



Convincing gasoline "superusers" to switch to EVs is an important way to significantly reduce transportation energy use and greenhouse gas emissions. Gasoline superusers are the top 10% of gasoline consumers in the US and there are 53,000 of these superusers in Vermont. They represent just 14% of Vermont drivers, but they collectively consume 41% of the state's gasoline (99 million gallons/year). A report from Coltura found that a gasoline superuser switching to an EV has over four times the climate impact of a non-superuser making the switch. Convincing superusers to switch also has equity benefits, as approximately 39% of Vermont superuser households earn less than the state median income and spend an average of 21% of their income on gas.

Figure 13-18a. Light Duty Truck EV Adoption Targets for the Bennington Region. From CAP Mitigation LEAP projections.

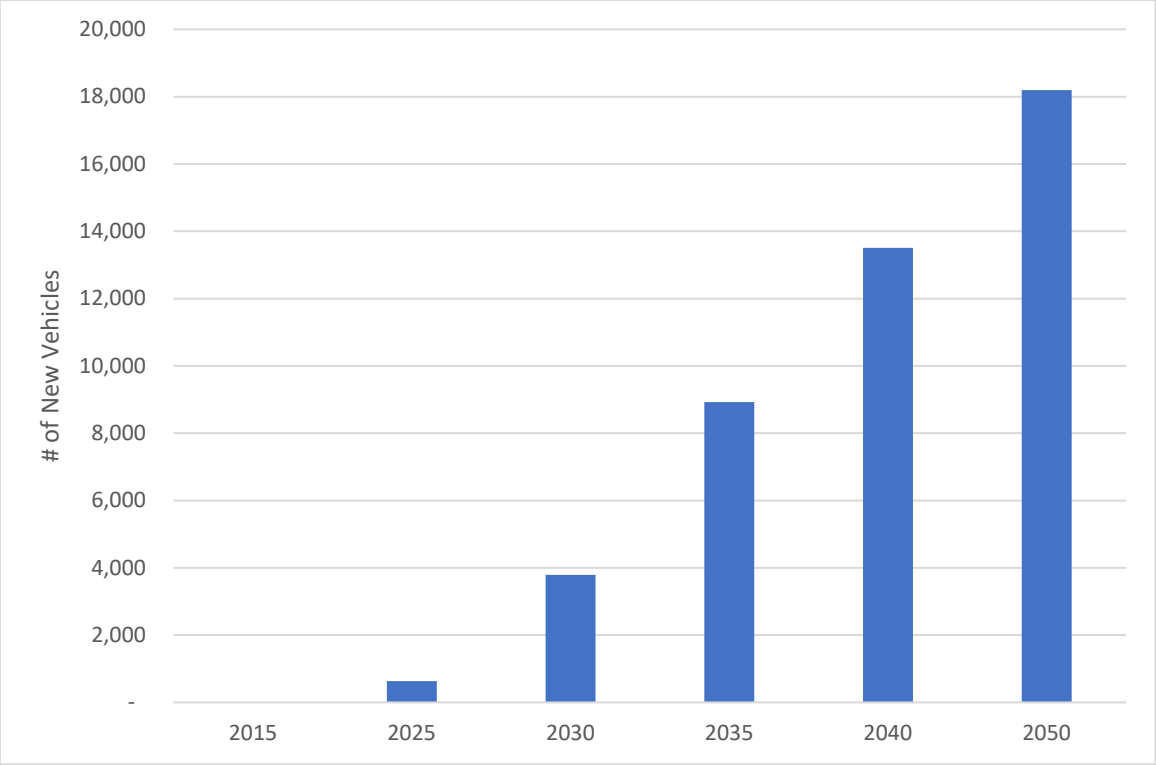
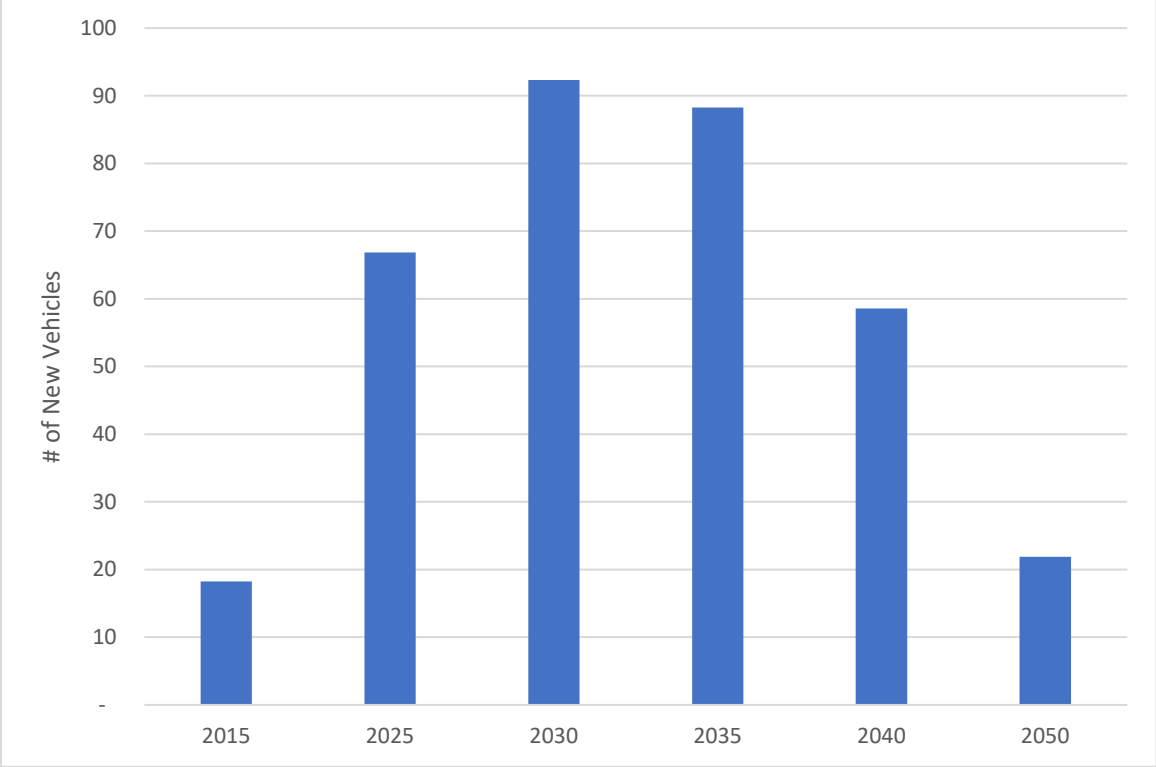


Figure 13-18b. Light Duty Truck PHEV Adoption Targets for the Bennington Region. From CAP Mitigation LEAP projections



Access to reliable and affordable transportation is important for peoples' ability to access jobs, services, and participate in their communities. The transition to clean forms of transportation will not only involve widespread EV adoption, but also improvements to other methods of transportation. Improving transportation alternatives to single-passenger vehicles, such as public transit and shared use paths, helps to reduce energy use and greenhouse gas emissions, and also improves equity for those who do not have access to a vehicle (as well as those who cannot or would prefer not to drive). Improving public transit and walking, biking, and rolling infrastructure is especially important, because not everyone can afford to take part in the transition to EVs due to the upfront cost and lack of sufficient charging infrastructure.

According to the 2023 Annual Progress Report for Vermont by the Energy Action Network (EAN) , Bennington County households spent an average of $14,275 (25% of household income) on transportation costs in 2020. For low-income households, this figure represents a larger share of their annual income. Transportation infrastructure is a particular challenge in rural areas, with low population densities contributing to limited public transportation services and a greater reliance on personal vehicles. In Bennington County, just 27% of households live within half a mile of public transit, less than the statewide average of 30%, according to the EAN progress report. While it is estimated that only around 8.5% of Bennington County households lack access to a vehicle[47], improving access to alternative modes of transportation will benefit all residents by reducing transportation costs and greenhouse gas emissions associated with single-passenger vehicle travel. Land use regulations that encourage clustered development in walkable town and village centers can also help reduce the need for single-passenger vehicle trips and make goods and services more accessible to people without the ability or desire to drive.

13.3 Renewable Energy Generation in the Region

Working toward meeting the state's renewable energy generation requirements is a significant component of the energy planning process in Vermont. The Bennington region has already made progress in increasing renewable energy generation, but significantly more development is needed, particularly for wind energy. This section analyzes existing generation in the region, establishes incremental generation targets for the years 2025, 2035, and 2050, and identifies preferred sites and constraints to renewable energy development in the region.

13.3.1 Existing Generation

According to 2024 data from the Vermont Department of Public Service, there is currently about 23.05 megawatts (MW) of distributed renewable energy generation in the Bennington region. The number increases to 25.3 MW of distributed capacity when

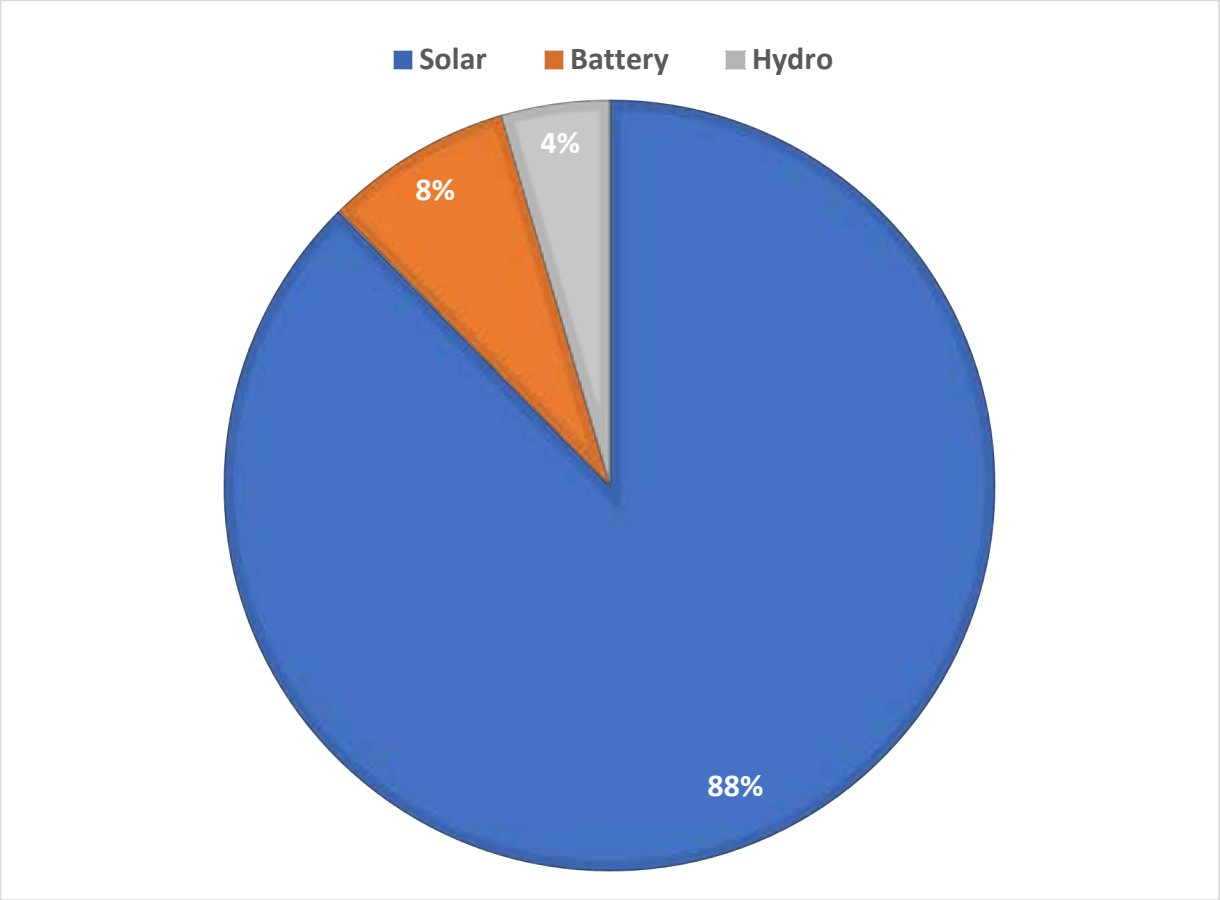
[47] 2022 ACS 5-Year Estimates

battery storage is factored in (battery storage is not generation). The vast majority of this installed capacity, nearly 90%, comes from solar sites. The remaining capacity comes from a small handful of hydro and wind sites. This is shown in Table 13-2 and Figure 13-19. More information about calculation of annual production and a breakdown of distributed generation by town can be found in Appendix A.

Table 13-2: Summary of Distributed Renewable Energy Generation in the Bennington Region, 2024.
Only active, permitted sites included as provided by the Department of Public Service as of April 2024.

Renewable Energy Source	Sites	Installed Capacity (MW)	Annual Production (MWh)
Solar	830	21.91	28,789.74
Wind	3	0.012	23.652
Hydropower	4	1.127	4,936.26
Total	**837**	**23.05**	**33,749.65**

Figure 13-19. Proportion of Distribution Capacity by Renewable Energy Source within the Bennington Region, 2024. Wind represents only 0.05% of regional distribution capacity and is not shown. Source: Vermont Public Service Department.



Many of the 830 solar generation sites in the Bennington region are small rooftop or ground-mounted solar arrays at private residences and businesses. Larger solar sites in the region include the 2.2-Megawatt (MW) Battle Creek Solar array off Route 67A in Bennington, the 2 MW Southern Vermont Energy Park Project in Pownal, and the 2.2 MW Pownal Park Solar project. Existing solar generation sites are depicted in Map 13-1.

2021 data from Efficiency Vermont estimates that the region's total annual regional energy demand is 282,925 megawatt hours (MWh), but the region generates just 33,750 MWh annually (see Table 13-2), meaning that the region only generates enough energy to meet 11.9% of its energy needs. The expansion of renewable energy development in the Bennington region will be crucial to meeting regional and state energy goals and for achieving energy independence.

13.3.2 Renewable Energy Generation Targets

This energy plan establishes ambitious renewable energy generation targets for the years 2025, 2035 and 2050 as shown in Table 13-3. The targets were developed using the Department of Public Service Generation Scenarios Planning Tool, with an assumption that 20% of Vermont's energy needs would come from in-state generation. The Generation Scenarios Planning Tool is an Excel-based tool that calculates renewable energy generation targets at the municipal and regional level based on population, land availability, and existing generation (see Appendix A for more information). A significant acceleration of renewable energy development in the region will be needed to meet these targets.

Table 13-3: Incremental Energy Generation Targets for the Bennington Region. Source: Vermont Department of Public Service Generation Scenarios Planning Tool.

Target Year	New Solar (MW)	New Rooftop Solar (MW)	New Wind (MW)	New Hydro (MW)	Total New Capacity (MW)	Total New Gen (MWh)
2025	12.0	8.3	4.4	0.1	26.0	37,296
2035	23.1	18.3	8.6	0.3	50.2	72,104
2050	33.5	26.4	12.6	0.5	73.0	104,760

Using the Generation Scenarios Planning Tool, incremental regional targets can be broken down into town-level generation capacity targets as shown in Table 13-4, which breaks down the 2050 targets. Appendix A provides 2025 and 2035 incremental targets and more detail about the municipalization of targets. The capacity targets for several towns exceed the distribution headroom[48] available to that town. Therefore, achieving the 2025, 2035, and 2050 generation targets will require upgrades to the grid and corresponding transmission and 3-phase distribution lines. The BCRC will work with

[48] Distribution headroom refers to the available capacity of the electrical grid.

the Vermont Electric Power Company (VELCO) and participate in the long-range transmission planning process to address these capacity and infrastructure issues.

Table 13-4. Renewable Energy Generation Capacity Targets (in MW) by Town for the Bennington Region.
Source: Vermont Department of Public Service Generation Scenarios Planning Tool.

Town	Solar	Rooftop Solar	Wind	Hydro	Total
Arlington	2.8	2.2	0.7	0	5.7
Bennington	14.6	11.4	0.9	0.3	27.2
Dorset	2.2	1.7	0.4	0	4.3
Glastenbury	0	0	0	0	0
Landgrove	0.2	0.1	0.1	0	0.4
Manchester	5.2	4.1	0.3	0.1	9.7
Peru	0.8	0.7	2.5	0	4
Pownal	2.5	1.9	1.3	0	5.7
Rupert	0.6	0.5	3.5	0	4.6
Sandgate	0	0.2	0	0	0.2
Shaftsbury	2.9	2.2	0.2	0.1	5.4
Stamford	0.6	0.5	1.7	0	2.8
Sunderland	0.8	0.7	0.4	0	1.9
Woodford	0.3	0.2	0.6	0	1.1
Total	**33.5**	**26.4**	**12.6**	**0.5**	**73**

A. Wind – 12.6 MW by 2050

The Bennington region, due to its mountainous geography, has potential for wind energy development but significant constraints likely prevent widespread wind development in the region. The ridges of the Green and Taconic Mountain ranges run north-south through the region and have very high average high wind speeds. Wind energy development has already occurred along similar mountain ridgelines just outside of the region in Searsburg and in Massachusetts. However, there is no commercial scale wind (turbines of 10-100 kW capacity) currently in the region, and there are only a few smaller turbines. Because wind speeds are lower in valley areas it is not practical to encourage commercial wind energy development in these low-lying areas in the region. Therefore, while the region can hope to achieve a small amount of its 2050 goal of 12.6 MW of new wind capacity through residential-scale wind turbines (those less than 10 kW capacity), the only realistic way to reach the goal will be through some level of large-scale wind development.

The Department of Public Service estimates 25 acres of land is needed per 1 MW of wind development. Consequently, to achieve the 2050 goal of 12.6 MW,

approximately 315 acres of land are needed (see Table 13-5). The BCRC estimates that there are approximately 746 acres of prime land for wind development in the region, and that number increases to 25,922 acres when secondary land is considered (see Map 13-2). Relatively few utility-scale wind turbines (>1 MW capacity) in a limited number of prime resource areas would allow the region to achieve its goal. Planning efforts should focus on identifying areas that would be most appropriate for such large-scale wind generating developments.

Each town in the Bennington region has sufficient land to meet 2050 targets for wind energy generation, although some towns may have to develop wind energy outside of prime resource areas. This is depicted in Table 13-5. Prime wind acreage values shown in the table only reflect land within one mile of three-phase power lines. The capacity and generation potential figures reported in the table were calculated using formulas from the Guidance for Regional and Municipal Enhanced Energy Planning Standards (2024, Vermont Department of Public Service, pp. 17-19).

Table 13-5. Wind Capacity and Generation Potential by Town in the Bennington Region, 2024.
Derived according to: Guidance for Regional and Municipal Enhanced Energy Planning Standards, Vermont Department of Public Service.

Town	2050 Wind Goal (MW)	Acres of Land Needed to Meet Goal	Prime Wind Acres Available	Prime Wind Capacity (MW)	Prime Wind Generation Potential (MWh)	Prime & Secondary Wind Acres Available	Prime & Secondary Wind Capacity (MW)	Prime & Secondary Generation Potential (MWh)
Arlington	0.7	17.5	1	0.04	78.8	1,389	55.6	109,508.8
Bennington	0.9	22.5	33	1.32	2,601.7	1,801	72	141,990.8
Dorset	0.4	10	0	0	0	872	34.9	68,748.5
Glastenbury	0	0	0	0	0	0	0	0
Landgrove	0.1	2.5	5	0.2	394.2	257	10.3	20,261.9
Manchester	0.3	7.5	0	0	0	627	25.1	49,432.7
Peru	2.5	62.5	8	0.32	630.72	5,098	203.9	401,926.3
Pownal	1.3	32.5	1	0.04	78.8	2,780	111.2	219,175.2
Rupert	3.5	87.5	682	27.3	53,768.9	7,247	289.9	571,353.5
Sandgate	0	0	0	0	0	0	0	0
Shaftsbury	0.2	5	10	0.4	788.4	338	13.5	26,647.9
Stamford	1.7	42.5	0	0	0	3,617	144.7	285,164.3
Sunderland	0.4	10	6	0.2	473	741	29.6	58,420.4
Woodford	0.6	15	0	0	0	1,155	46.2	91060.2
Total	**12.6**	**315**	**746**	**29.84**	**58,814**	**25,922**	**1,036**	**2,043,690**

B. Solar – 33.5 MW by 2050 with 26.4 MW of Rooftop Solar by 2050

While solar is not as efficient in Vermont as it is in other areas of the US with very high rates of solar radiation, it is a critical component of the state's renewable energy generation plans. The Bennington region has significant potential to develop solar

photovoltaic (PV) energy resources. Guidance from the Department of Public Service estimates that 8 acres of land are needed per 1 MW of ground-mounted solar development; however, as contingency, 60 acres per MW should be estimated to account for potential unavailability or unsuitability of land. Accordingly, to achieve the goal of 33.5 MW of ground-mounted solar by 2050, approximately 2,010 acres of land are needed. This is further broken down by town in Table 13-6. The BCRC estimates that there are approximately 7,716 acres of prime solar land in the region, and that number increases to 48,838 acres when secondary land is considered (see Map 13-3).

Table 13-6. Solar Capacity and Generation Potential by Town in the Bennington Region, 2024. Derived according to: Guidance for Regional and Municipal Enhanced Energy Planning Standards, Vermont Department of Public Service.

Town	2050 Solar Goal (MW)	Acres of Land Needed to Meet Goal	Prime Solar Acres Available	Prime Solar Capacity (MW)	Prime Solar Generation Potential (MWh)	Prime & Secondary Solar Acres Available	Prime & Secondary Solar Capacity (MW)	Prime & Secondary Generation Potential (MWh)
Arlington	2.8	168	318	5.3	6,964.2	1,643	27.4	35,981.7
Bennington	14.6	876	1,657	27.6	36,288.3	10,649	177.5	233,213.1
Dorset	2.2	132	720	12	15,768	4,777	79.6	104,616.3
Glastenbury	0	0	0	0	0	0	0.00	0
Landgrove	0.2	12	342	5.7	74,89.8	3,635	60.6	79,606.5
Manchester	5.2	312	1,489	24.8	32,609.1	7,019	117	153,716.1
Peru	0.8	48	630	10.5	13,797	3,240	54	70,956
Pownal	2.5	150	345	5.8	7,555.5	2,488	41.5	54,487.2
Rupert	0.6	36	358	6	7,840.2	1,651	27.5	36,156.9
Sandgate	0	0	0	0	0	0	0	0
Shaftsbury	2.9	174	1,174	19.6	25,710.6	7,615	126.9	166,768.5
Stamford	0.6	36	160	2.7	3,504	2,547	42.5	55,779.3
Sunderland	0.8	48	477	7.9	10,446.3	3,212	53.5	70,342.8
Woodford	0.3	18	46	0.8	1,007.4	362	6	7,927.8
Total	**33.5**	**2,010**	**7,716**	**128.6**	**168,980**	**48,838**	**813.97**	**1,069,552**

Unlike wind energy development, solar energy development will require a mix of installation types throughout the region, including rooftop and ground-mounted systems at a range of sizes. It will also be necessary to develop a number of commercial-scale (in the 150-500 kW capacity range) arrays. Several sites that may be well-suited to low-impact solar energy development are identified in Section 13.4. Ideally, municipalities will also identify such areas in their own local energy plans. Table 13-6 shows that each town has sufficient land to meet its 2050 solar goal.

Rooftop solar in the Bennington region could also contribute to the area's solar capacity target. The Vermont Public Service Department has developed a rooftop solar generation planning tool that takes into account roof aspect; however, it does not account for roof condition or existing rooftop arrays. Consequently, the tool output is a significant overestimation of rooftop solar potential. Energy planners in the state have recommended considering only 25% of the potential estimated by the tool until newer versions are developed that can incorporate additional variables. Outputs from this tool are shown in Map 13-4 for downtown Bennington and Map 13-5 for Manchester's urbanized area. For the Bennington region as a whole, the tool estimates about 68,400 MWh of annual rooftop solar generation, or 52 MW of capacity could be achieved. Table 13-7 shows potential rooftop solar capacity and generation by town.

Table 13-7. Potential Rooftop Solar Capacity and Generation by Town in the Bennington Region. Source: Rooftop solar generation planning tool, Vermont Department of Public Service, 2024.

Town	2050 Rooftop Generation Capacity Goal (MW)	Raw Generation Potential (MWh)	Estimated Generation Potential (MWh) - 25% of Raw Potential	Estimated Generation Capacity (MW)
Arlington	2.2	19,343	4,835.8	3.7
Bennington	11.4	100,480	25,120	19.1
Dorset	1.7	26,108	6,527	5
Glastenbury	0	72	18	0.01
Landgrove	0.1	2,078	519.5	0.4
Manchester	4.1	49,767	12,441.8	9.5
Peru	0.7	5,851	1,462.8	1.1
Pownal	1.9	19,568	4,892	3.7
Rupert	0.5	7,831	1,957.8	1.5
Sandgate	0.2	3,058	764.5	0.6
Shaftsbury	2.2	24,790	6,197.5	4.7
Stamford	0.5	5,571	1,392.8	1.1
Sunderland	0.7	6,431	1,607.8	1.2
Woodford	0.2	2,823	705.8	0.5
Total	**26.4**	**273,771**	**68,442.75**	**52.09**

C. Hydro – 0.8 MW by 2050

The Bennington region does not have any large-scale dam structures, so achieving the 2050 regional goal of 0.8 MW of new hydroelectric generation capacity will require development at several small, existing dam sites (see Map 13-6) and possibly a few micro-hydro systems. A hydroelectric potential map from the Vermont Center for Geographic Information, suggests that up to 965 kW of hydroelectric generation (or 0.965 MW) may be possible across dam sites in the Bennington region.

13.3.3 Siting Renewable Energy

To identify appropriate areas for renewable energy development, namely solar- and wind-generated electricity, enhanced energy plans are required to include map studies of wind and solar resources. Act 174 establishes the following steps for regions and municipalities to take as they assess the potential for generating electricity from solar and wind resources:

1. Identify and map areas within the jurisdiction where wind and solar resources are present.
2. Remove areas with known constraints, as established in Act 174, from those mapped resource areas.
3. Identify areas that have possible constraints, as established in Act 174, within the mapped resource areas.
4. Identify areas where development should be avoided and where it should be encouraged.
5. Determine other site-specific concerns relevant to potential project development.

Substantial Deference or Due Consideration?

- Renewable energy projects seeking a Certificate of Public Good (CPG) from the Vermont Public Utility Commission (PUC) under 30 VSA §248(b)(1) are exempt from local permitting. However, the PUC considers local plan policies during its review of a proposed development.
- Regional and municipal plans that undergo the Act 174 enhanced energy planning process and receive an affirmative determination of energy compliance from the Department of Public Service receive "substantial deference" from the PUC in the Section 248 review process. Plans that do not meet the enhanced energy planning standards receive the less weighty "due consideration" by the PUC.
- This energy element of the regional plan is structured to function as a resource for municipalities in the Bennington region that which to seek substantial deference for their local plans.
- Duly adopted local plans that do not meet the enhanced energy planning standards of Act 174, but otherwise meet all the requirements of Chapter 117, will continue to receive "due consideration" from the PUC.
- Whether or not a municipality chooses to pursue substantial deference, it is hoped that this regional energy plan will encourage comprehensive strategies that deliver energy justice, conserve resources, and reduce fossil fuel pollution by towns and villages throughout the region.

The BCRC conducted an Act 174-compliant mapping exercise to determine appropriate locations for renewable energy development in the region and to determine acres of prime and potential land for siting wind and solar generation. Potential locations for renewable energy development are identified in energy resource maps. The most fundamental element of the energy resource maps is the natural existence of potential for solar and wind energy resources referred to as *Solar Resource Area* and *Wind Resource Area*.

The Vermont Center for Geographic Information provides data that illustrate wind and solar generation potential—with known constraints removed and possible

constraints identified—for the public to use. Within this data, VCGI has already conducted initial analyses to remove any potential resource areas that coincide with known constraints (conditions that preclude development are discussed in more detail in the following section) and to identify any potential resource areas that overlap with at least one possible constraint (conditions that could, but will not necessarily, prevent development, also discussed in more detail in the following section).

The BCRC used the inputs from VCGI to produce maps of prime and secondary wind and solar resource areas in the Bennington region. The following elements are included in the resource maps:

1. Prime Resource Areas – Areas with good renewable energy resource potential and no known or possible constraints.
2. Secondary Resource Areas – Areas with good renewable energy resource generation potential and no known constraints, but at least one possible constraint.
3. Grid Infrastructure – Another important element of the energy resource maps is the location of grid infrastructure, including three-phase distribution lines and high-capacity transmission lines. These are shown on both the wind and solar resource maps. Grid infrastructure location and capacity will play an important role in determining the economic feasibility of a certain site for a renewable energy generation facility. As mentioned earlier in this plan, several municipal generation capacity targets exceed the distribution headroom available to that town. Additionally, several municipalities with significant prime and secondary resource potential lack sufficient access to distribution lines which impacts their suitability for renewable energy development. The 2024 Vermont Long-Range Transmission Plan found that the Vermont transmission system “cannot adequately accommodate the projected targets of installed [distributed generation] without addressing the system constraints.” Meeting the state’s renewable energy requirements will require a combination of system upgrades, energy storage, flexible load management, and other solutions.
4. Regional Constraints – Additional conditions identified by the BCRC that may limit renewable energy generation potential at applicable sites.

The wind and solar resource maps, and the corresponding data, should be used to inform energy planning efforts by municipalities and the region. They may also be used for conceptual planning or initial site identification by those interested in developing renewable energy infrastructure. They should ***not***, however, take the place of site-specific investigation for a proposed facility, and should therefore not be thought of as “siting maps.” The step-by-step analysis used to develop these maps may be conducted specifically for any site where renewable energy development has been

proposed, and in that sense, these maps provide a model for the process that should be undertaken when evaluating the siting of a renewable energy development. Any proposed renewable energy project must comply with all state requirements and state agency rules.

Individual municipalities should refine these renewable energy resource maps by adding additional locally identified constraints to development and preferred locations for solar, wind, and hydro generation, as well as thermal applications. These enhanced municipal-level resource maps should be given substantial deference at Public Service Board Section 248 proceedings unless there is a clear conflict with the energy goals of this Regional Energy Plan.

13.3.4 Development Constraints

The development of renewable energy must be sensitive to the natural and human environment. Accordingly, the state has established the following known and possible constraints to renewable energy development which are reflected in the following wind and solar resource potential maps.

Known Constraints

- Vernal Pools – seasonal wetlands that provide habitat for various species
- Department of Environmental Conservation (DEC) River Corridors – rivers and land adjacent to rivers that is necessary to maintain the natural movement of a river
- FEMA Special Flood Hazard Areas – Areas most likely to be affected by floods where development is limited
- State-significant Natural Communities
- Rare, Threatened, and Endangered Species
- National Wilderness Areas
- Class 1 and 2 Wetlands

Possible Constraints

- Agriculturally Important Soils
- FEMA Special Flood Hazard Areas – zones with a 0.2% change or higher of annual flooding
- Protected Lands (state fee lands and private conservation lands)
- Act 250 Agricultural Soil Mitigation Areas
- Deer Wintering Areas
- Hydric soils – areas where soils are saturated for part of the year, leading to biological conditions similar to wetlands
- The following features from ANR's Vermont Conservation Design:
    - Highest priority interior forest blocks
    - Highest priority connectivity blocks
    - Highest priority physical landscape blocks

- Highest priority surface water and riparian areas

Additionally, the BCRC has established the following regional constraints which apply to commercial-scale projects:

- **Historic Districts:** Historic districts listed in the State Register of Historic Places are inappropriate areas for siting commercial-scale renewable energy generation.
- **Residential Wind Buffer (500 meters):** Wind turbines should not be located in excessive proximity to residential areas so as to mitigate potential impacts of sound pollution or other ambient externalities. This plan recommends that at distance of at least 500 meters from residences be respected.

Forest Blocks and Habitat Connectors

The BCRC recognizes the importance of protecting forested lands as a key element of the regional environment. Forests play a crucial role in sequestering carbon from the atmosphere, and the state's 2021 Climate Action Plan accordingly places significant emphasis on protecting forest blocks and habitat connectors to achieve statewide goals of greenhouse gas emissions reductions and carbon sequestration. When possible, renewable energy development that requires forest conversion should be avoided if viable alternative sites exist.

Substantial Regional Impact

The BCRC reviews all advance notices and petitions for Certificates of Public Good, with specific attention given to the policies outlined in this energy element of the regional plan. If it is determined that a proposed renewable energy project may have substantial land use or environmental impacts beyond the scope of factors clearly delineated in this chapter, the BCRC may convene a joint meeting of the Regional Energy Committee and the Development Review Committee to discuss the project.

13.3.5 Preferred Sites

BCRC has identified the following preferred sites for renewable energy development.

LARGE SOLAR (>150 kW)

- Former landfills
- Gravel Pits
  - Off Cider Mill Road in Shaftsbury
  - Off Tunic Road in Shaftsbury
  - Off Airport Road in Shaftsbury
  - Sunderland, South of former Orvis HQ, east of US 7
- Large Rooftops
  - Bennington Square Shopping Center
  - Walmart/Price Chopper, Bennington

    - Hannaford, Bennington
    - Home Depot, Bennington
    - Manchester Public Safety Building
    - Bennington DPW Facility
- Area Schools
- Commercial/Industrial Sites
    - NSK, Bennington
    - Industrial buildings along Water St in North Bennington
    - Bernstein Display, Shaftsbury
    - Mack Molding
- Large parking lots in the region also present an ideal opportunity for solar canopies, such as the one installed at Lawson's Finest Liquids in Waitsfield, VT. Solar canopies have the added benefit of providing covered parking and can be paired with electric vehicle charging.

WIND

- Western Sandgate and Rupert – Also in the Taconic range, the area surrounding Egg Mountain in Sandgate has a large concentration of high wind speeds. However, proximity to infrastructure could be a challenge in this location.
- Southeastern Stamford – The northern edge of the Hoosac Mountain ridge that runs into southern Stamford may be a prime location for wind development, and there are already several commercial-scale wind turbines on the same ridge across the border in Massachusetts.

HYDRO

- Hydroelectric development in the region is limited to existing dam facilities (see Map 13-6).

13.3.6 Municipal Siting Guidelines

The following expanded procedure may be used by municipalities to develop their own renewable energy facility siting guidelines. Examples of siting criteria and conditions that municipalities may wish to employ are included in the suggested process. Developing clear siting guidelines can communicate a municipality's preferences to a prospective developer, however, these guidelines are not zoning regulations. Additionally, it is the *policies* of a municipal plan that will be considered by the PUC during a Section 248 proceeding.

Step 1: Define the purpose of renewable generation facilities and set local goals.

It is important that a municipality clearly define its purpose and goals related to the development of renewable energy since local goals must work together with regional and state goals if Vermont is going to successfully realize its renewable energy requirements. The first step in successful local energy planning will be for a municipality

to review state and regional energy plans and to specify what role it can play in implementing the plans.

Step 2: Establish general facility siting guidelines.

Certain considerations may be applicable to a variety of different renewable generation facilities. Therefore, before establishing site-specific considerations, a municipality should articulate general criteria that apply to all renewable generation facilities. The following list includes examples of criteria that municipalities may wish to apply more generally. This is not meant to be an exhaustive list, and it is not suggested that municipalities necessarily include any of the following examples:

- Consistency with energy policy: facilities should be consistent with all existing energy planning objectives at the statewide, regional, and local levels. Plans to be consulted include the Vermont Comprehensive Energy Plan, the Vermont Long-Range Transmission Plan, the utility's Integrated Resource Plan, and this regional energy plan.
- Proximity to infrastructure: When possible, sites selected for development should be located proximate to existing load and infrastructure, including electrical grid and road access, as well as other types of infrastructure to minimize costs and negative impacts associated with new construction.
- Resource preservation: preservation of natural resources and other physical and aesthetic conditions critical to the sense of place in a community should be maintained; *areas of high importance should be specifically identified in municipal energy plans as sites that are not appropriate for facility development (discussed further in Step 3)*.
- Decommission plans: proposed projects should include planning and funding for decommissioning and site restoration to pre-project condition once a facility's useful life has ended.
- Screening: the need for screening solar facilities from neighboring sites should be considered. Existing topography and other natural features can often be used to create screening, and solar facilities should be designed accordingly.
- Sound: facilities that generate significant sound should not be located within a specified distance of residential structures; *requirements related to sound which would most likely apply to wind development, should articulate specific decibel levels and distances where possible*.

Step 3: Identify preferred areas and conditions for facility development.

It would be ideal for municipalities to identify specific preferred sites for renewable energy facility development. In addition to identifying specific sites, municipalities should develop a list of siting criteria to be used to identify other preferable locations for development. These criteria should clearly reference types of renewable generation facility (Hydro, Wind, or Solar) and varying levels of generating

capacity in conjunction with the conditions to be met for siting the facilities. Siting and facility preferences may include the following:

- Areas with good access to renewable energy and existing infrastructure;
- Roof-mounted solar systems;
- Areas near large-scale commercial or industrial buildings;
- Brownfield sites;
- Unused areas where past uses have replaced or significantly impacted the natural landscape, including former gravel pits, quarries, or landfills;
- Areas where topography and existing features naturally screen a site from common view;

Step 4: Identify areas that are not suitable for development and establish local constraints

Municipalities should review potential sites according to the Known, Possible, and Regional Constraints that were used to develop the Wind and Solar Resource Potential Maps. Those constraints are summarized in Section 3.4.1.

13.3.7 Other Renewable Energy Technologies

A. Biomass and Methane

Electricity can also be generated from other resources, including woody biomass (especially as a combined heat and power (CHP) project), and biodigesters that use organic waste to produce methane that can be burned to generate power. Biomass is energy derived from plants and animals and can be used for heating, electricity generation and as a transportation fuel. According to the US Energy Information Administration (EIA), Biomass, sources include wood (*e.g.*, cordwood, wood chips, wood pellets, sawdust), agricultural crops used to produce biofuel (*e.g.*, corn, soybeans, algae), biogenic materials found in solid waste (e.g., paper, cotton, wool, food, yard wastes), and animal manure and human sewage.

Biomass from wood sources is by far the largest current source of energy in the Bennington region (see Map 13-7). Much of the cordwood used for heating is sourced from nearby forests. Similarly, many of the woodchips used in institutional heating systems (such as those at Bennington College and at the Mount Anthony Middle School and High Schools) are obtained from forests in or near the region. Approximately three-fourths of the region is covered with forests and the amount of new growth is far in excess of the annual harvest, suggesting that a significant amount of additional woody biomass is potentially available to supply local heat energy needs. The proximity of the resource is important since the energy density of wood is low relative to fossil fuels, making it particularly important to minimize transportation costs by procuring the wood close to its end use location.

Large regional facilities that may be good candidates for biomass CHP projects include NSK Steering Systems and the Vermont Veterans Home in Bennington, Equinox Golf Resort and Spa and Burr and Burton Academy in Manchester, and Bromley Mountain Ski Resort in Peru (see Appendix A for a more expansive list). Potential biodigester projects could be located at the wastewater treatment plants in Bennington and Manchester, or large farming operations in the region.

B. Thermal Energy Networks

A thermal energy network (TEN) is an emerging technology that can help to decarbonize Vermont's thermal sector and provide affordable heating and cooling to Vermonters. According to Vermont Community Thermal Networks (VCTN), a "thermal energy network is an umbrella term that can include networked geothermal and other systems that use water to capture, re-use, and share thermal energy between buildings." VCTN worked with the Energy Action Network to create a guide to developing thermal energy networks in Vermont communities. The potential exists to develop efficient TENs in the region's compact downtown and village centers. The BCRC will work with municipalities to explore the possibility of TENs in their communities.

C. Energy Storage

Electricity storage is technology that has the potential to dramatically improve access to electricity produced by intermittent renewable energy sources, such as wind and solar, by making it available for use when it is most needed. The American Council for an Energy-Efficient Economy (ACEEE) provides a technical brief exploring energy storage systems as an emerging opportunity for increasing the energy efficiency of residential and commercial buildings.

Energy storage is rapidly expanding in Vermont and the Bennington region. According to data from the Department of Public Service, at the end of 2023, Vermont had 55 MW of installed storage with an additional 30 MW in development. The Bennington region had 2.2 MW of installed storage. Furthermore, storing energy, often in the form of a battery, can play an important role in emergency preparedness and resiliency, as it can provide a source of energy in the event of a power outage. Green Mountain Power has developed home energy storage programs to help reduce the amount of power needed during times of peak demand. EV to grid, in which energy is stored in the battery of an electric vehicle and then fed back into the grid during times of peak demand, is another method of energy storage that can improve grid resilience.

13.3.8 Increasing Access through Local Generation

For communities to thrive, local leaders should look to programs and policies that encourage locally generated and managed fossil-fuel-free energy, while prioritizing

access and affordability for historically underserved community members. Generating and managing electricity from renewable sources close to where it is used rather than generating at large power plants and transmitting over long distances, has multiple benefits. Technologies for such decentralized power generation are known as distributed energy resources (DERs). Decentralization has the potential to lower costs for consumers, improve the reliability and resilience of the grid, and increase equity among community members. However, community members can only benefit from DERs by direct participation. The implementation of some programs, like the state's net-metering program, could result in higher costs for those who do not or cannot participate. DERs like community-owned solar and utility-led energy programs that promote energy savings and energy storage can lead to improved health and equity in Vermont communities. The BCRC will work with the region's municipalities to assess local potential renewable energy projects and develop enhanced energy plans that identify and prioritize energy efficiency and generation goals and renewable energy siting that is desirable and beneficial to the community at large.

The following programs can help improve energy access and affordability in the region's communities:

- **Community-Owned Solar** has the ability to provide a number of meaningful benefits to participants and their communities, especially increased access for low- to moderate-income households, greater bill savings, resilience, community ownership and wealth-building opportunities, and equitable workforce development. For rural areas, solar arrays can have a positive multiplying effect when combined with agriculture, also known as agrivoltaics. Additionally, siting renewable solar generation (possibly combined with storage) in proximity to key food resources like food shelves, community gardens, community food storage facilities, grocery stores, and the like can be a way to improve access to local, more affordable, and healthier food options.
- **Utility-led Energy Programs:** Increasingly, distribution utilities must play a role in providing fossil fuel-free energy infrastructure and storage to ensure reliable, affordable clean energy for all. Some utilities in the state offer programs for income-eligible Vermonters to help lower the cost of energy at home.
- **State-led Energy Programs:** Programs offered through the Vermont Department of Public Service, such as the Solar for All Program, are designed to make clean energy more accessible and affordable to low- and moderate-income community members. Programs like these will help thousands of eligible Vermonters reduce energy burden costs while growing new community solar projects in the state.

13.4 Energy Planning and Decision-Making

The BCRC strives for a transparent and accessible planning process. This energy element of the regional plan was developed with several opportunities for public input, including bimonthly commission meetings, regional energy committee meetings, and regional plan review committee meetings. The adoption of this updated regional plan with embedded energy plan will be followed by a more comprehensive regional plan update with more robust public engagement. Outreach to community members who have not historically participated in regional planning processes, and who stand to be most impacted by specific energy policies and objectives will be prioritized. After adoption by the regional commission, there will be further opportunity for public input during the Department of Public Service determination of energy compliance process.

Municipalities undergoing the enhanced energy planning process should seek public input, just as at the regional level, through a variety of engagement methods to encourage participation among community members. Strong municipal energy planning will be the product of diverse input and widespread community support.

This plan establishes the following guidelines for equitably developing energy goals and policies at the regional and local level.

1. Identify populations that will be most impacted by a proposed energy policy or program using the following resources guides.
    a. The Climate and Economic Justice Screening Tool
    b. Efficiency VT's Energy Burden Maps
    c. EPA IRA Disadvantaged Communities Map
    d. Environmental Justice Focus Population Visual Aids
    e. Vermont Department of Health Vulnerability Indicator Tools
    f. The Agency of Natural Resources is in the process of developing an environmental justice mapping tool which should be used once available.
2. Evaluate proposed energy policies and programs using the Energy Justice Scorecard. Vermont's Guiding Principles for a Just Transition (scoring rubric) may also be a useful evaluative tool.
3. Using the Energy Justice Scorecard and Vermont's Guiding Principles for a Just Transition, evaluate the potential human impacts of renewable energy projects, and energy efficiency projects, with specific emphasis on environmental justice populations, to ensure that these residents receive equal or greater benefits from energy decisions.
4. Provide multiple ways to participate in the planning process beyond traditional public meetings, and widely advertise the opportunities for public participation.

Additional methods of outreach and participation could include surveys, small-group conversations, and pop-up tabling in public places.

5. Identify barriers to public participation in decision-making and planning processes and take appropriate steps to remove those barriers to the greatest extent possible. For example, this may involve offering childcare or transportation to and from meetings.
6. Other tools and frameworks that may be useful for the development and evaluation of equitable policies and programs include:
    a. Transportation Equity Framework
    b. Vermont Health Equity Planning Toolkit
    c. Vermont Municipal Climate Change Vulnerability Indicators Tool

13.5 Energy Actions

The following list of goals and actions will guide the region's energy policy.

GOAL – Reduced regional energy burden and fossil fuel pollution in support of Vermont's climate and energy goals.

ACTIONS:

1. Empower municipal energy committees to engage with residents and municipalities about opportunities to reduce energy burden and switch to affordable renewable energy sources. Additionally, continue to collaborate and partner with organizations (including municipalities, educational institutions, businesses, and non-profits) to help meet the State's energy and climate goals.
2. Support a wide variety of renewable energy generation types, including, but not limited to, sustainable uses of biomass for heating, passive solar building design, biodigesters for electricity generation, photovoltaic solar, agrivoltaics, wind turbines, and optimizing the energy potential for existing hydro-electric dams in the region.
3. Work with landlords, developers, and businesses to raise awareness about the importance of weatherization, non-fossil fuel-based heating systems, and EV charging.
4. Support changes in federal, state, and local policies to achieve Vermont's goals related to the Comprehensive Energy Plan, Climate Action Plan, and Environmental Justice Law.
5. Encourage the Vermont legislature to adopt laws and increase incentives and rebates that reduce energy burden for the region's residents, businesses, and institutions.

6. Work with community partner organizations to promote programs that help reduce energy burden such as:
    a. BROC's free home weatherization program for income-eligible households.
    b. The Green Savings Smart Program.
    c. Efficiency Vermont's income-based assistance programs.
    d. The Weatherization Repayment Assistance Program (WRAP).

GOAL – Resilient, energy efficient buildings and communities, and reduced thermal energy use in the Bennington region.

ACTIONS:

1. Promote Vermont's residential and commercial building energy standards (RBES/CBES) for new construction and existing buildings, including additions, alterations, renovations, and repairs.
    a. Host and facilitate building science and standards training and education opportunities for local officials, zoning administrators, and relevant workforce development groups. Encourage communities with zoning to require Certificates of Occupancy. Encourage the local adoption of "stretch energy codes."
    b. Review local zoning bylaws and offer technical assistance to development review boards when evaluating the energy, climate, and health implications of site plans for proposed developments.
    c. Work with housing and energy efficiency organizations to promote and improve the regional supply of energy efficient housing.
2. Promote weatherization and energy efficiency programs to individuals and businesses.
    a. Work with Heat Squad, BROC, and other weatherization programs to increase programmatic offerings in the Bennington region.
    b. Promote and encourage energy audits of residential and commercial buildings.
    c. Identify and support weatherization workforce training opportunities in the region.
    d. Promote incentives offered by Efficiency VT and Green Mountain Power, especially incentives for switching to clean heating technologies such as heat pumps.
3. Work with municipalities to identify opportunities for fuel switching and efficiency upgrades in municipal buildings.

4. Support the use of geothermal heating and cooling systems for new residential and commercial construction.
5. Encourage biomass district heating and combined heat and power systems throughout the region by providing information about biomass heating to businesses and property owners.
6. Work with the owners of buildings and facilities that serve critical community functions to improve the efficiency and resiliency of these locations.

GOAL – Growth and development in compact, mixed-use centers.

The regional land use plan and the plans of towns and villages in the region all support the concept of high-density mixed-use development in compact centers surrounded by rural open land. This development pattern is inherently energy efficient by reducing the amount of driving required to reach destinations and by making alternative transportation modes more viable. Those plans can be strengthened and more effectively implemented in a number of ways.

ACTIONS:

1. Work with municipalities to support redevelopment of town and village centers by assisting with the creation of plans for new mixed-use development, conducting environmental assessments, and by facilitating coordination among entities that have a role in property development. New development should include the types of housing, commercial attractions, and amenities that support the vibrancy and growth of these areas.
2. Work with local planning commissions to amend land use regulations and plan infrastructure improvements that support planned mixed-use centers.
3. Help municipalities apply for state designation programs that support compact development.
4. In village centers where the infrastructure needed to support the desired mix and density of development is not available, support technical assistance projects in cooperation with the *Agency of Commerce and Community Development* and the *Department of Environmental Conservation* that will lead to expanded water supply and wastewater disposal options.
5. Support programs that provide incentives to maintain economically viable rural open lands. Encourage local plans and regulations to promote land conservation and maintenance of the working landscape (i.e., farms, forestry, and supporting uses) over low-density residential development in rural areas.

GOAL – Decreased energy use, costs, and fossil fuel pollution in the transportation sector.

ACTIONS:

1. Follow the 2023 Vermont Transportation Equity Framework to help decision makers plan for and prioritize projects, ensure accurate representation in decision making, and enhance the equitable delivery of services. Continually assess transportation access and barriers in the region.
2. Expand walking and biking infrastructure to support active, multi-modal transportation and to provide interconnection with the region's transit system.
    a. Implement the strategies and priorities identified in the Vermont Health Equity Planning Toolkit that are relevant to the Bennington region.
    b. Work with municipalities to update municipal road standards (for maintenance and new construction) to reflect Complete Streets principles.
    c. Review state transportation projects to ensure that Complete Streets are implemented.
    d. Ensure that site plans include adequate bike and pedestrian infrastructure and safety measures, through participation in the Act 250 hearing process.
    e. Assist municipalities with scoping of future bike and pedestrian facilities to improve safety, accessibility, efficiency, and continuity of the system.
    f. Help municipalities use the outcomes of the scoping studies to apply for various Agency of Transportation implementation grants.
    g. Promote the use of the region's existing bike and pedestrian infrastructure and support the efforts of local groups maintaining them.
3. Promote Transportation Demand Management (TDM) and Ridesharing programs.
    a. Promoting and supporting the Go!Vermont program that links travelers to a variety of transportation resources and mobility options.
    b. Supporting the continued development and expansion of park-and-ride facilities.
    c. Supporting employer programs to encourage telecommuting, carpooling, vanpooling, walking, and biking for employee commute trips.
4. Encourage increased use of public transit.
    a. Support investment in Green Mountain Express services in the region.
    b. Work with Green Mountain Express and the Agency of Transportation to identify opportunities for transit improvement and expansion.
    c. Support the integration of park-and-ride facilities with transit routes.
    d. Work with schools in the region to maximize ridership for public school buses and minimize use of private vehicles for student transport.

5. Adequately fund the maintenance and preservation of our existing transportation assets including roads, bridges, walkways, bike paths, and park-and-ride facilities.
6. Promote and support rail infrastructure as a cost-effective transportation resource.
7. Encourage EV adoption and the development of electric vehicle supply equipment (EVSE), including Level 1, Level 2, and Level 3 charging stations, in downtowns, village centers, and opportunity zones, as well as along key interstate and state highway corridors.
    a. Assist communities with planning for and securing funding for EVSE.
    b. Educate individuals on the benefits of EVs with an emphasis on gasoline superusers.
    c. Promote workplace charging to regional businesses.
    d. Assist municipalities and businesses with fleet electrification through grant support and technical assistance.
8. Support the expansion of electric powered buses and vans among the public and private transportation providers serving the region, including school districts (EPA Clean School Bus Program).
9. Work with cycling advocacy groups such as the Bike Hub, and Local Motion to host safe on-road cycling workshops and raise awareness about the viability of micro-mobility (such as electric bikes and scooters).
    a. Provide training to local planning commissions to require infrastructure for alternative transportation in new developments.
    b. Provide technical and grant writing assistance to municipalities to plan for multi-modal transportation and better connectivity with alternative transportation modes.

GOAL – Support the development of new, community-scale renewable energy generation that is affordable, equitable, and respects the natural environment.

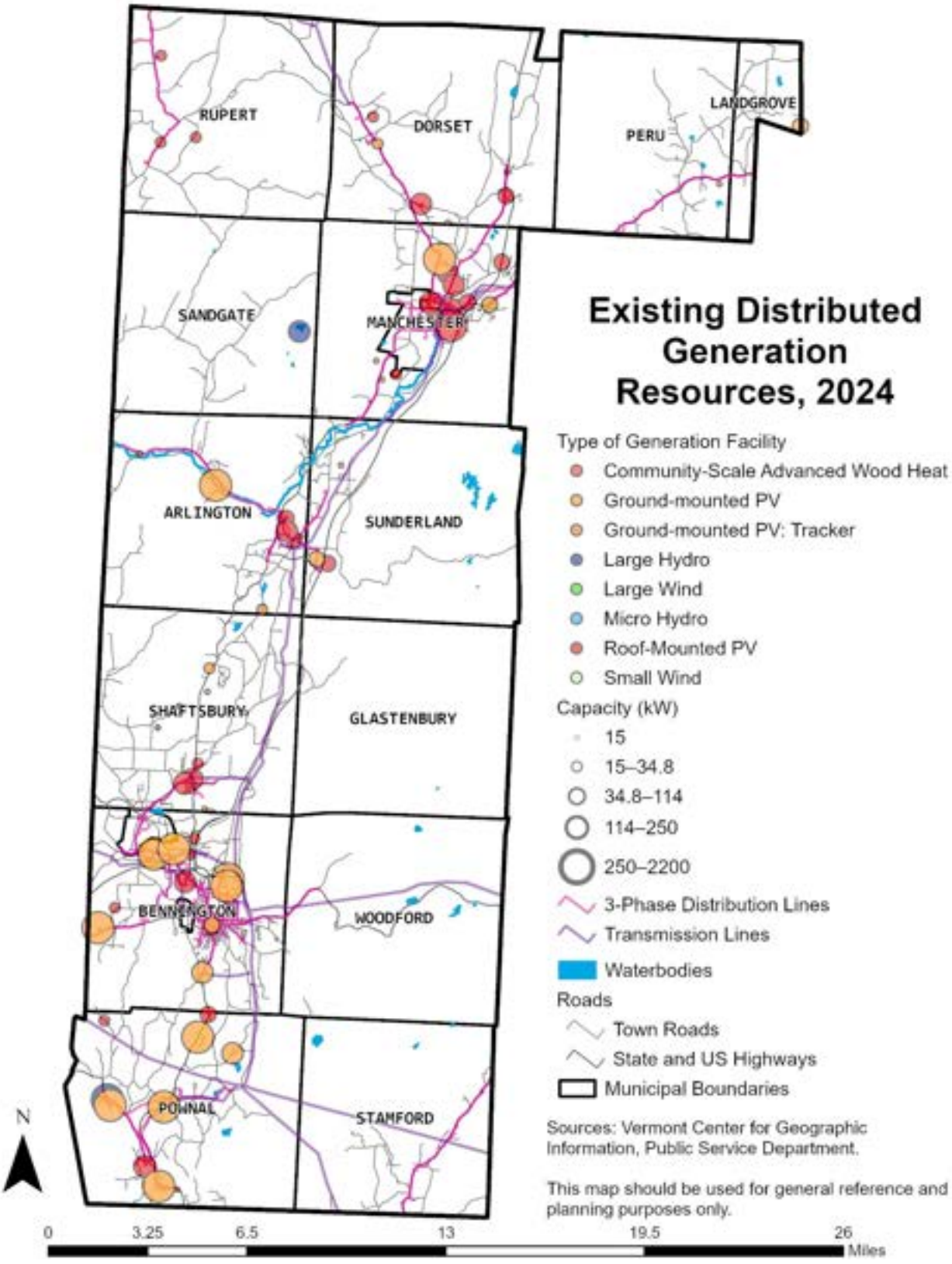
ACTIONS:

1. Support the development and siting of renewable energy, storage, transmission, and distribution resources on state and regionally preferred (and potential) locations, as identified by BCRC's Act 174 Energy Maps.
2. Investigate public benefits provided to communities either directly from renewable energy developers or as a condition of a Certificate of Public Good. Assess if the current system is equitable to all municipalities impacted by a renewable generation facility, or if the current system can be improved to provide

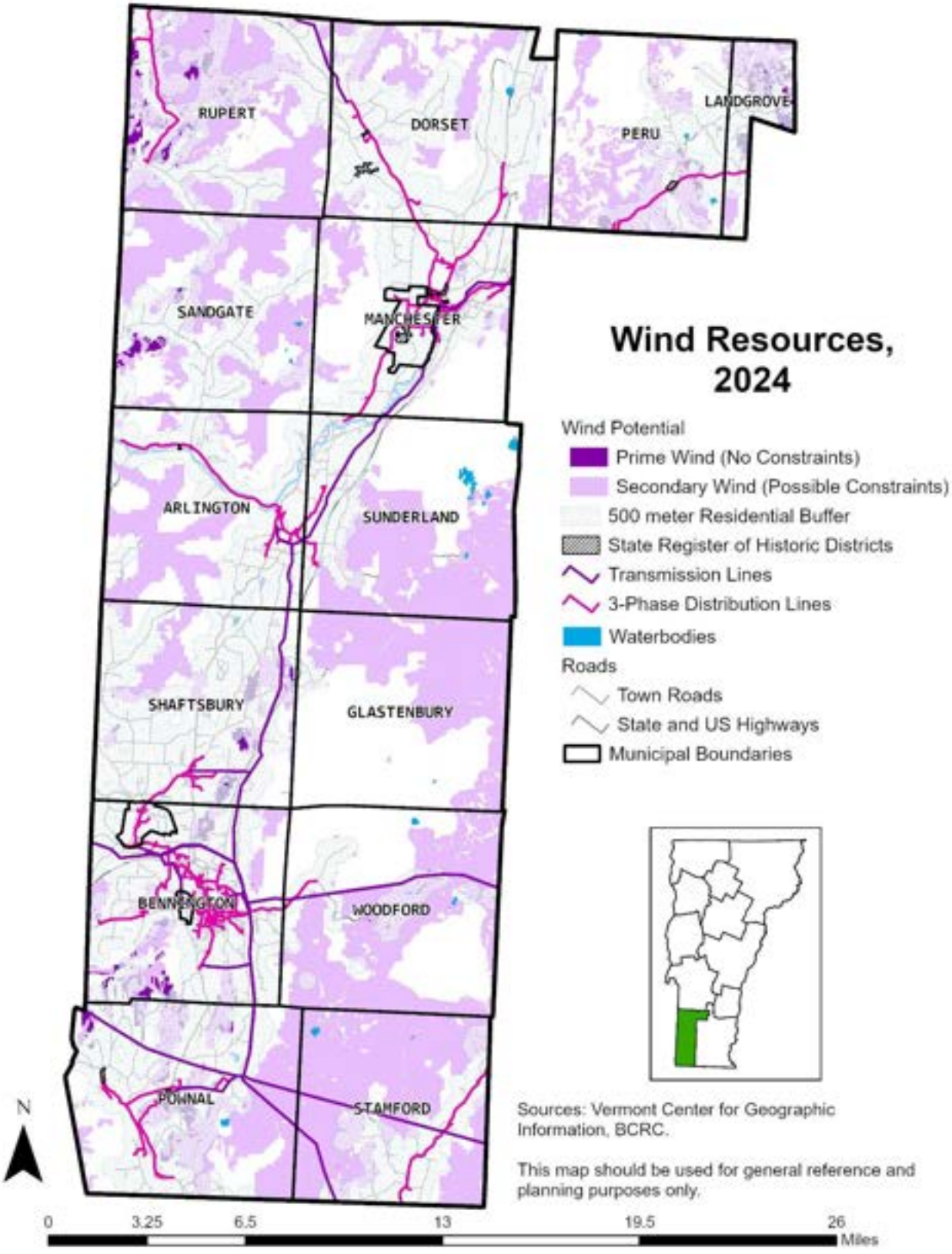
greater equity to all community members impacted by a renewable energy generation facility.

3. Encourage municipal land use regulations that promote co-development of renewable energy generation with storage and flexible load management strategies.
4. Support in-place upgrades of existing facilities, including existing renewable energy generation, storage, transmission lines, distribution lines and substations as needed to reliably serve municipalities and the region.
    a. Cooperate with VELCO in assuring reliable transmission and distribution of electricity in the region. Work with VELCO to identify and mitigate grid constraints that may arise from large scale distributed generation in the region.
    b. Coordinate regional energy planning with Green Mountain Power, ensuring that areas planned for new renewable energy generation projects are consistent with the capacity of the grid infrastructure and that any upgrades needed are implemented.
5. Support the economic viability of farms through appropriate renewable energy development as a complementary use that keeps farms in agricultural production while preserving agricultural soils and working lands. Promote the use of and increase the amount of on-farm power and community energy generation and the use of renewable energy for farming and food production (such as anaerobic digesters, solar, wind, biomass, and biodiesel) in accordance with local and regional planning priorities.
    a. Encourage agrivoltaics that co-locates solar energy generation with active farming.
    b. Encourage and support agricultural production of biofuels and oilseed crops and explore ways to broaden access to processing infrastructure.

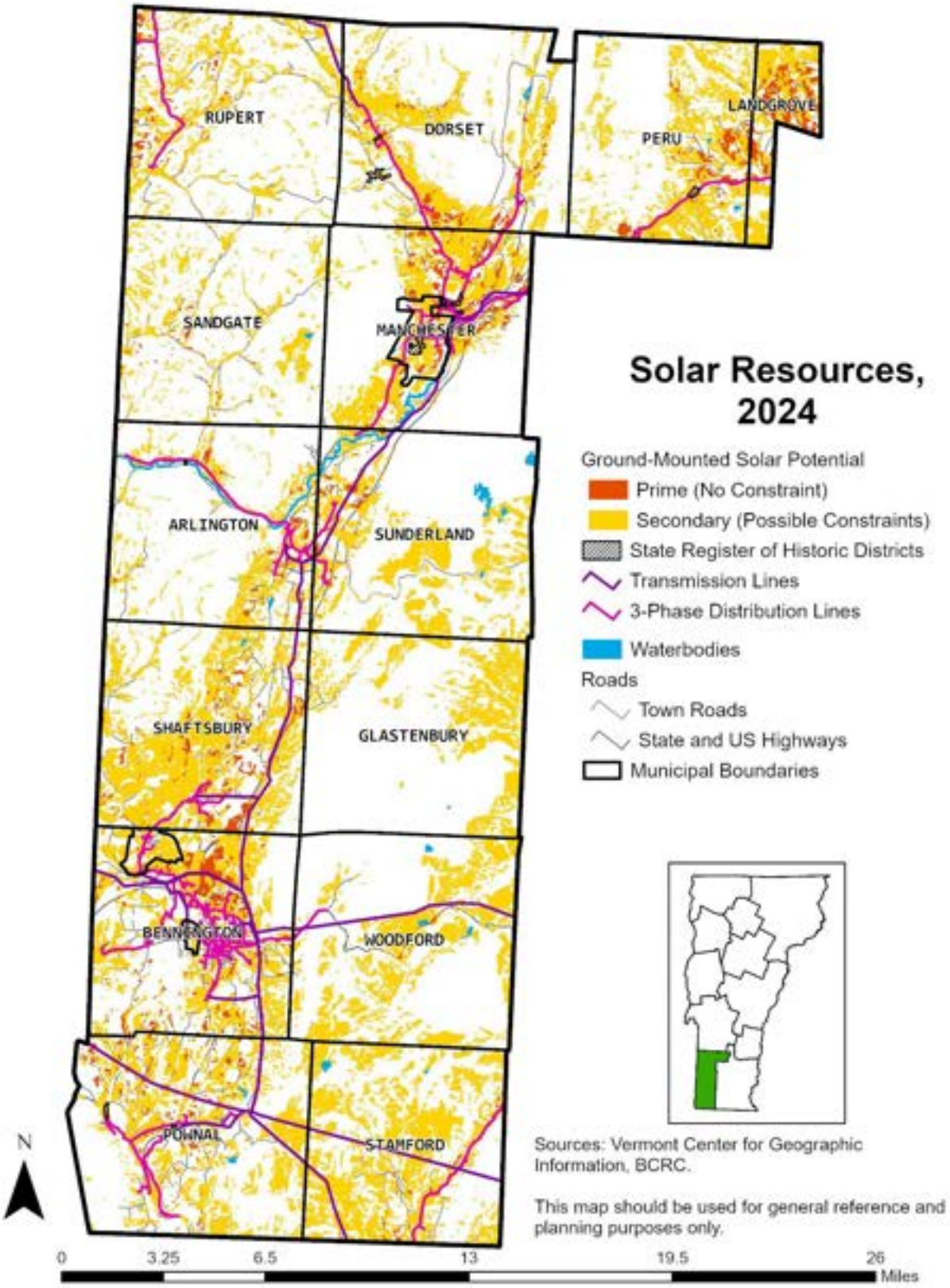
Map 13-1. Existing Distributed Renewable Resource Generation in the Bennington Region.



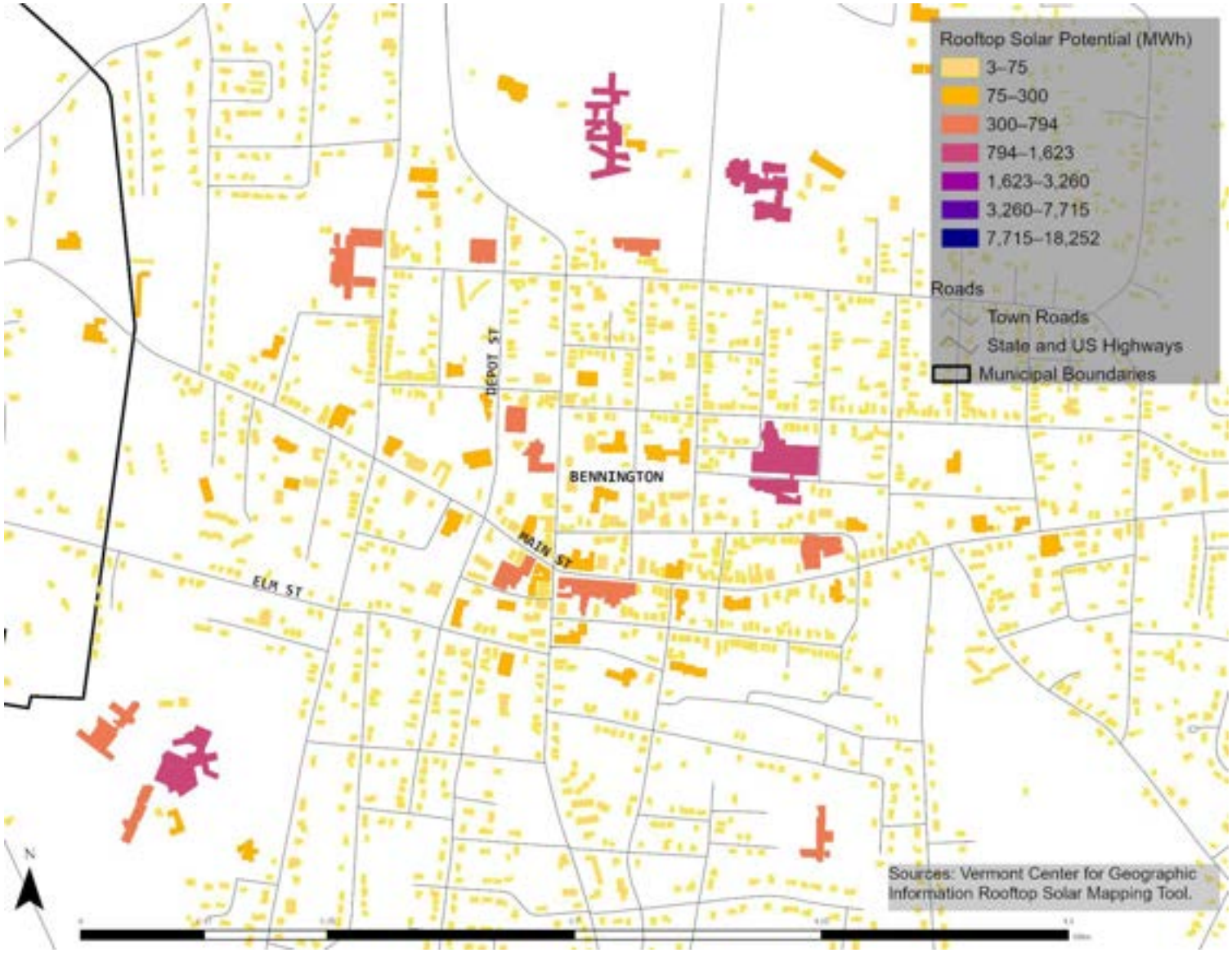
Map 13-2. Wind Resource Areas in the Bennington Region.



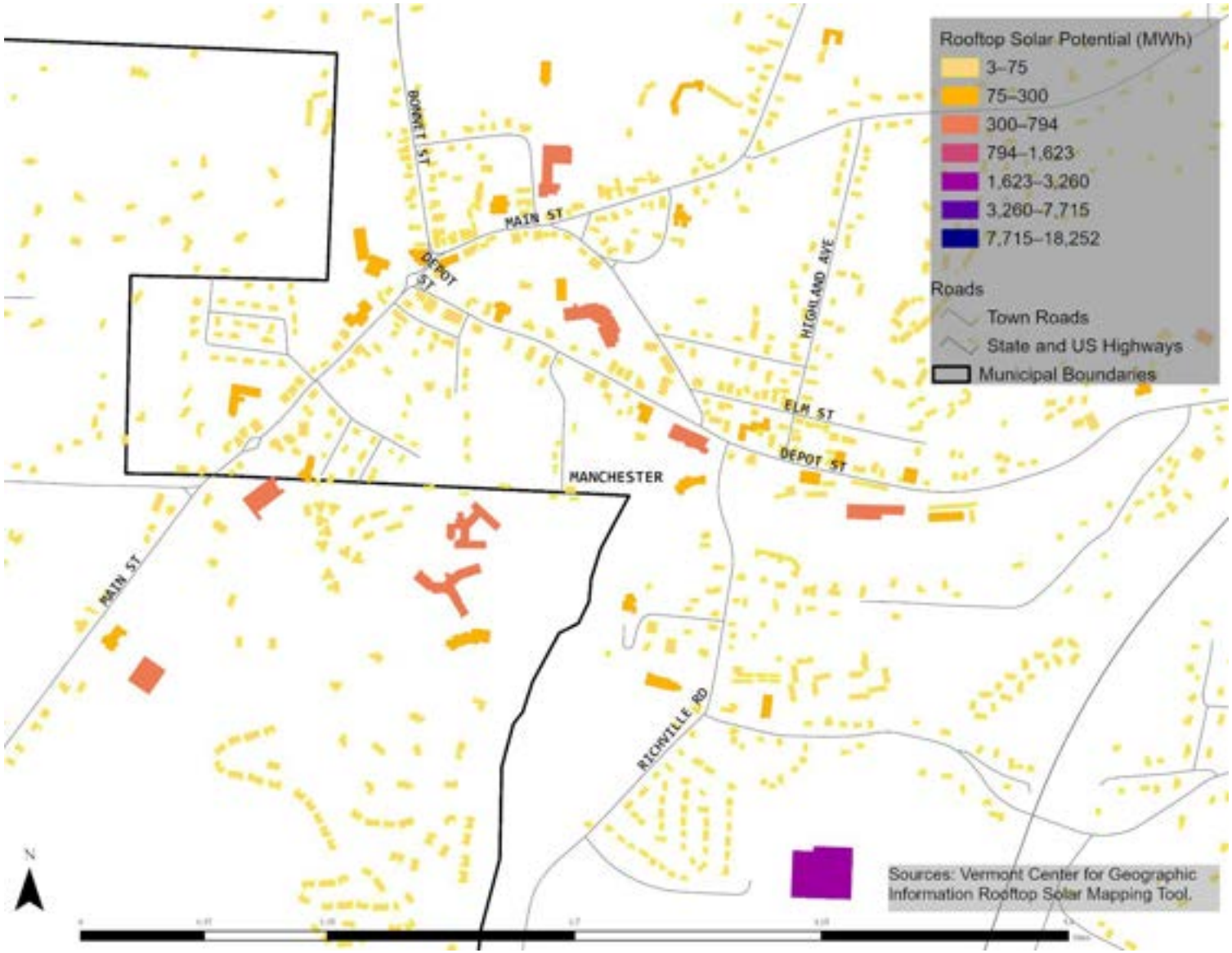
Map 13-3. Solar Resource Areas in the Bennington Region.



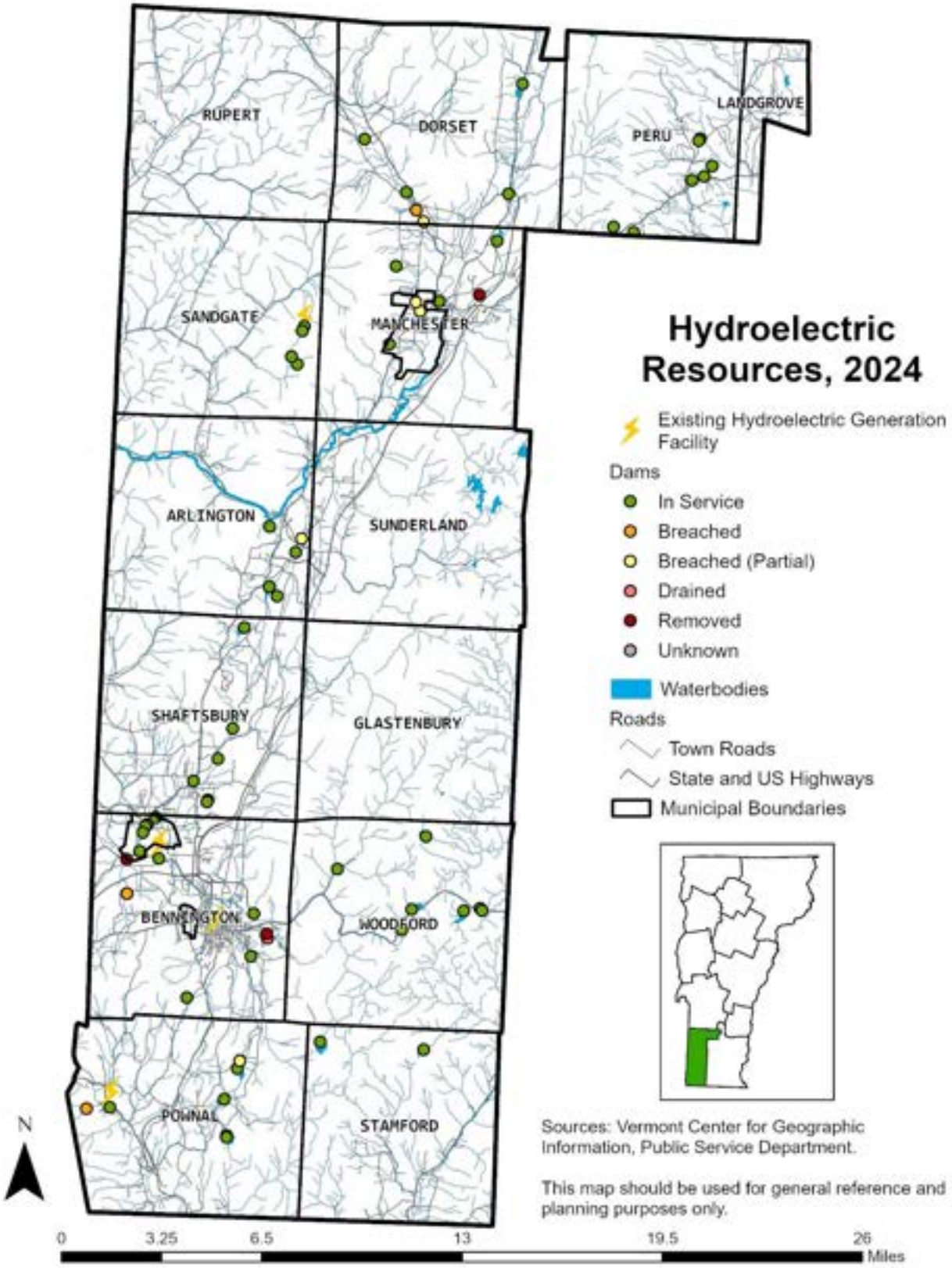
Map 13-4. Estimated Rooftop Solar Potential in Downtown Bennington, Vermont.



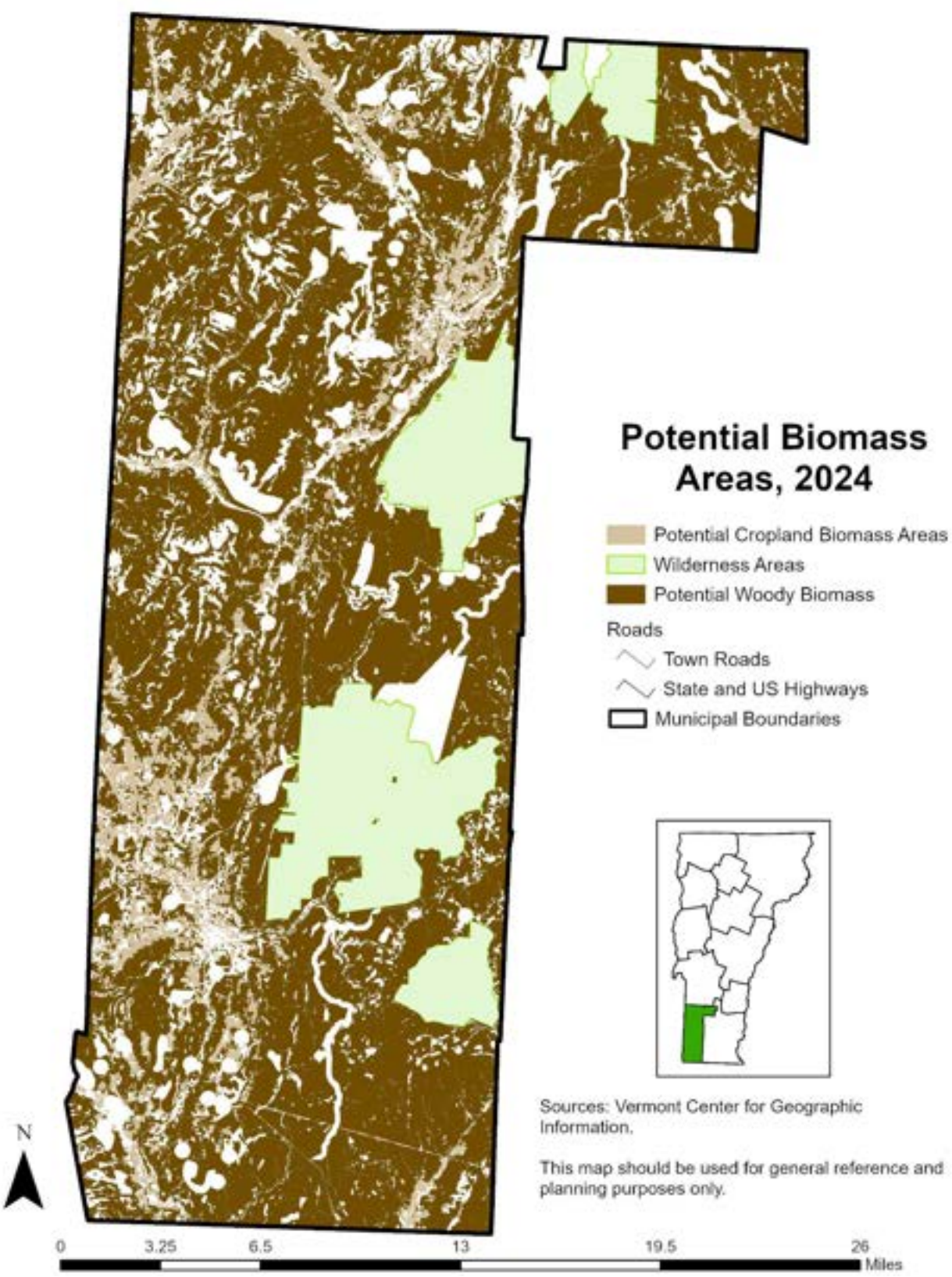
Map 13-5. Estimated Rooftop Solar Potential in Downtown Manchester and Manchester Village, Vermont.



Map 13-6. Hydroelectric Resources in the Bennington Region.



Map 13-7. Biomass Resources in the Bennington Region.



14 COORDINATION AND IMPLEMENTATION

14.1 Coordination

Cooperative and creative engagement with the region's municipalities, community organizations and businesses, as well as close working relationships with relevant state and federal agencies and adjoining regional commissions, is at the heart of BCRC's activities. Effective planning and community development requires coordination among organizations and between various levels of government. The BCRC works with local governments, including elected and appointed boards, commissions, and staff, that represent its constituent towns and villages. The BCRC maintains effective communication and working relationships with area business groups, social service and community action agencies, and conservation and other public service organizations. Because state and federal agencies fund many of the local and regional programs and projects in which the BCRC is involved, while also providing technical support and exercising regulatory control, it is vital that coordination at the state and federal level is maintained as well. The BCRC also needs to coordinate many aspects of its work program with neighboring regions.

In addition to its planning programs, the BCRC has maintained a community development program since 2012 and expanded it to include economic development in 2016. Since then, BCRC has served as both the Regional Planning Commission (RPC) and Regional Development Corporation (RDC) for southwestern Vermont. The BCRC uses various approaches to ensure that coordination is conducted with appropriate frequency and effectiveness across its program areas. At the local level, this regional plan serves as a coordinating document. It provides a consistent regional framework for the development of local plans and implementation actions. Statewide planning goals are established in state law (24 V.S.A. §4302) and support coordinated planning between local, regional, and state entities throughout Vermont.

14.1.1 Municipal Governments

Each of the seventeen BCRC member municipalities is represented by a commissioner appointed by the local legislative body. Those commissioners serve a key coordinating function, representing the interests of their town or village as a BCRC commissioner while returning important information to their communities. BCRC staff also consult with each municipality on a regular basis to identify current issues and needs and provide information about new state or regional programs, initiatives, and funding opportunities. Of course, in the execution of its regular work program, BCRC staff work closely with towns and villages as they update their plans and bylaws and undertake a range of special projects. This close involvement with local officials establishes a consistent and enduring relationship that is critical to local-regional coordination and helps ensure that conflicts between neighboring communities are avoided.

14.1.2 Local Organizations

Many local groups and organizations, in addition to municipal governments, contribute to the vibrancy of the region and participate in various aspects of community planning and development work. The BCRC engages with those entities in a variety of ways to promote effective and coordinated planning. Several interest group commissioners are elected to serve on the BCRC each year. Those commissioners represent economic development, housing, transportation, energy, land and water conservation, agriculture and local food, local business, and public health interests. The interest group commissioners provide an important perspective to regional planning and serve as liaisons between the BCRC and the businesses and organizations that they represent. BCRC staff and commissioners also regularly attend meetings, participate in projects, and serve on the boards of many local and regional organizations.

14.1.3 Regional, State and Federal Agencies

Many of the BCRC's community and economic development and planning programs are directly funded through state and federal grant programs, thus bringing those services to the local level. Special mention should be made of the fact that a federal agency, the United States Forest Service, is the largest landowner in the Bennington region. The BCRC works closely with staff at the Green Mountain National Forest to ensure that local and regional interests are coordinated with federal land management priorities and projects. Coordination between state and federal programs is also facilitated by the BCRC's active participation as a member of the Vermont Association of Planning and Development Agencies (VAPDA), the statewide consortium of the state's eleven regional planning commissions, the Regional Development Corporations of Vermont, the confederation representing Vermont's twelve regional development corporations, and the Vermont Community Development Association, a statewide network of community development professionals.

BCRC staff regularly attend meetings and trainings conducted by state and federal agencies and, in turn, are able to provide important information to local and regional interests in the region. The BCRC also organizes and sponsors numerous meetings and workshops throughout the year that bring experts from various state and federal agencies to the region. Many of these training and informational sessions are available online, and BCRC staff participate in many of those "webinars" while publicizing the availability of those opportunities to interested parties in the region.

Coordination between the region and state is enhanced by BCRC review of state agency plans, programs, and projects. Those documents and initiatives are regularly reviewed for consistency with the regional plan and municipal plans and are assessed to determine if they support the findings and recommendations of relevant studies that have been completed at the local or regional levels.

14.1.4 Neighboring Regions

The BCRC shares a common border with two other Vermont regional planning commissions, the Rutland Regional Planning Commission (RRPC) to the north and the Windham Regional Commission (WRC) to the east. Coordination between these regions and regional planning commissions is accomplished in many ways. The commissions review and consider the plans of adjacent regions when developing their own plans, co-sponsor events that are of interest to officials and residents in the neighboring regions, and also participate in joint studies that cover issues of inter-regional importance.

The Rutland Region

Towns and villages in the Northshire are particularly interested in resources, developments, and activities occurring in the Rutland region, which is connected to the Bennington region by US Route 7 and the Vermont Railway along the Valley of Vermont and by VT Route 30 along the Mettawee Valley. The regions have many common interests. Manchester is a center for employment for many people living in Rutland County towns, while many Northshire residents work and shop in Rutland and surrounding communities and use the Rutland-Southern Vermont Regional Airport in Clarendon. The upper reaches of the Otter Creek and Mettawee watersheds begin in the Bennington region and extend to and through Rutland region, so water quality issues are a joint concern of both regions.

Shared transportation corridors are another mutual concern. Maintaining Route 7 as the major highway along the western side of Vermont is a critical economic development concern for both regions and the NY-VT Intercity Passenger Rail Study focused on alternatives for extending rail service through both regions. The two regions also have jointly worked to create and promote the Stone Valley Byway, a state-designated scenic byway that follows Route 30 north from Manchester, connecting the important marble, slate, and agricultural heritage shared by the two regions.

The Mettawee Valley is an important agricultural resource for both regions and both regional planning commissions have cooperated with each other, local governments, and the Vermont Land Trust, to conserve significant parts of this unique landscape. The Appalachian and Long Trails connect the two regions, along the crest of the Green Mountain Range, and cooperative planning with the Green Mountain National Forest help maintain those shared forest and recreational assets.

The Windham Region

The Windham and Bennington regions are connected across the forests of the Green Mountains. Three principal highways connect the two regions: VT Route 9, VT Route 30, and VT Route 11. The BCRC and WRC worked together to oversee creation of the Molly Stark Byway along Route 9 and maintaining that byway designation, the

quality of the highway, and promoting the economic resources along it remain important areas of regional cooperation. Routes 11 and 30 are important economic corridors connecting Manchester to nearby mountain towns, ski areas, and the eastern side of the state.

Kelly Stand Road, also known as the Arlington-West Wardsboro Road, is another important connection between the two regions. A gravel road that follows a narrow valley next to the Roaring Branch through Sunderland, Kelly Stand Road provides access to many recreational opportunities in the Green Mountain National Forest while also being the only roadway between Route 9 to the south and Route 30 to the north connecting central communities in Bennington and Windham Counties. In the winter, the upper portions of the Kelly Stand Road are closed, but it functions as a major recreational corridor for winter sports enthusiasts. Much of the roadway was completely washed away by Tropical Storm Irene in 2011. Cooperation between towns in both regions and the US Forest Service led to reconstruction and re-opening of the road in 2014.

Considerable development occurs in and around the ski areas in the mountains between the two regions. Cooperative planning between the two regions will help ensure that development at Bromley Mountain Ski Resort, Stratton Mountain Resort, and Mount Snow Resort benefits the economies of both regions while not adversely impacting natural resources or the transportation system.

A number of towns along the border between the Bennington and Windham regions share services across municipal and regional boundaries. Some of the northeastern communities in the Bennington region, for example, participate in a solid waste alliance, educational districts, and emergency management services with towns in Windham region. At the same time, some towns in the southern portion of the Windham region rely on nearby towns in the Bennington region for solid waste, medical, and other services.

The BCRC and WRC, together with economic development partners from both regions, conducted a joint effort to promote economic recovery from Tropical Storm Irene. This joint effort included shared staff resources and training programs focusing on village center and downtown revitalization as well as creation of a new marketing program to serve the entire two-county region. These combined efforts to promote the economy of the entire southern Vermont region continue, and coordination with regional planning and development organizations in nearby western Massachusetts will also occur.

The Berkshire Region

Berkshire County, Massachusetts, lies immediately south of Bennington County. US Route 7 and VT Route 8 lead from Bennington County towns to Williamstown, North

Adams, and other communities in Massachusetts, some of which are significant employment centers for residents of Pownal and Stamford. Many services located in those Massachusetts towns are important to residents of southern Bennington County, including a regional high school that is attended by students from Stamford. The closure of the North Adams Regional Hospital in 2014 left a critical need for convenient medical services for Stamford residents in particular for nearly a decade before in-patient services resumed in January 2024.

A cluster of liberal arts colleges exists in close proximity across the state line. Bennington College, Williams College, and the Massachusetts College of Liberal Arts present an opportunity for collaboration in educational programming and related economic development between the regions. The Berkshire region also contains a wealth of cultural and recreational resources, including several prestigious art museums, theaters, entertainment venues, and forest preserves. Joint marketing and economic development initiatives, highlighting the attractions in both regions, are regularly explored.

One branch of the Hoosic River rises in Vermont and then meets the other branch in Massachusetts. The river then turns northwest and flows through Pownal. The river represents an important natural, recreational, and economic resource to both regions. Coordinated efforts to improve water quality and recreational access, especially for canoeing and kayaking, are ongoing. The presence of pollutants in the river bottom, many of which were transported downstream from former mills in Adams and North Adams serves as a reminder of the need for coordinated watershed-wide planning.

Potential development on one side of the state line or the other also can lead to a need for inter-regional coordination. Proposals for an electricity generation and manufacturing facility at the Pownal Racetrack property, for example, raised concerns about traffic and environmental impacts that might be felt in Williamstown. It is important for the BCRC to remain aware of development proposals on either side of this, or other regional borders, and work with local and regional officials in those adjacent areas to effectively participate in the review process.

Rensselaer and Washington Counties

Coordination with the two New York State counties that border the Bennington region to the west is also extremely important. Most of the Bennington region lies in the Hudson River watershed, with the Batten Kill, Walloomsac, and Hoosic Rivers all flowing directly into those neighboring counties. Cooperative watershed planning organizations covering the Hoosic River (including the Walloomsac) and Batten Kill regions have been established and are supported by the BCRC.

Air quality is another concern that is particularly relevant. The prevailing winds in the region are from the west, so any air pollution coming from that direction could

impact the Bennington region. Significant degradation of air quality in the region could not only be detrimental to public health but could also affect development potential within the Bennington region if certain thresholds are exceeded. Accordingly, the BCRC should monitor developments in eastern New York and participate in regulatory proceedings as appropriate.

Employment centers in Manchester, Arlington, and Bennington draw many of their workers from neighboring communities in New York State. While it is a regional objective to provide housing for more of these employees closer to their place of work, maintaining good highway connections along Routes 346, 67, 9, 279, 313, and 153, as well as improved opportunities for carpooling and public transportation, will continue to be important.

The economy of the Bennington region is linked to the large metropolitan area in New York's Capital District, in and around Albany. That area provides employment, shopping, and cultural attractions for many residents of the Bennington region. Albany is a major transportation hub with intercity bus and rail stations and an international airport serving the Bennington region The Capital District is an important market for tourism in the Bennington region and for goods and services produced in the region. Maintaining the transportation infrastructure between the Capital District and the Bennington region is essential. In addition to the primary highway corridor (NY Route 7 and Route 279) and secondary highway corridor (NY Route 67), rail service improvements will be extremely important and will require cooperation and coordination with local and county officials in New York State.

14.2 Implementation

The BCRC undertakes a wide range of activities in addition to its coordinating function to implement the regional plan. Those activities will be described in general in this section, while additional specific policies and recommended actions are contained in individual chapters. Implementation steps are also summarized in an implementation matrix that is included as Appendix B in this plan.

The regional plan is reviewed each year when preparing the commission's annual work program and an annual implementation matrix is constructed as part of this review. The annual matrix will identify actions to be taken to advance specific objectives and include timeframes, responsible parties, cost, and other relevant issues.

Implementation activities described below are organized pursuant to BCRC program areas. There is significant overlap between program areas, and coordination among staff, BCRC committees, and other cooperating entities is crucial.

14.2.1 Comprehensive Municipal Planning

Most of the policies and programs identified in this plan will be most effective when implemented locally. Considerable emphasis, therefore, will continue to be placed

on the many local assistance programs that have been a mainstay of BCRC's work program since its inception.

- **Municipal Plans.** The BCRC assists municipalities as they prepare new or updated plans. BCRC staff will help local planning commissions assemble and analyze data, conduct research and surveys, and prepare text and maps. As part of the plan development process, during regular consultations, and when requested by a municipality, the BCRC will review local plans to evaluate their consistency with statutory goals and their compatibility with the regional plan and with the approved plans of other municipalities in the region. Currently, all seventeen of the region's municipalities have plans approved by the BCRC.
- **Bylaws.** Every municipality in the Bennington region has a zoning bylaw in effect and many have subdivision or integrated land use regulations. Many municipalities in the region have also adopted flood hazard and river corridor regulations, either integrated with the zoning regulations or stand-alone. The BCRC works with individual towns and villages to prepare new or amended zoning, subdivision, and other land use regulations as necessary to respond to changing conditions and to implement municipal plans.
- **Newsletters and Technical Bulletins.** The BCRC prepares and distributes a bimonthly newsletter that contains important information about recent activities and developments in the region, new state initiatives, funding opportunities, regulatory requirements, and upcoming events that may be of interest to local officials. The BCRC also distributes technical bulletins, prepared by commission staff or other entities, that provide guidance to local planners and officials on various topics of interest.
- **Trainings.** The BCRC will organize, sponsor, and conduct workshops and training seminars for local officials. These training sessions may be offered in collaboration with state agencies or other regional planning commissions. Training includes an annual Vermont planning and development law seminar and quarterly informal discussions with local planning and zoning officials. Topics include: proper procedures for preparing and adopting municipal plans and regulations and for conducting hearings and rendering decisions; mixed use development and walkable communities; village center, downtown, neighborhood, and growth center designation programs; inter-municipal shared services and agreements; housing; innovative responses to infrastructure challenges in planned growth centers; and other issues that are identified by local officials. Meeting with local boards and commissions is a regular and effective means of outreach, further enabling the BCRC to respond to particular local issues and concerns.
- **Special Projects.** The BCRC works with individual towns and villages and with

groups of towns and villages to conduct special community development and planning studies. These studies may include devising community and economic development strategies, planning for low-impact development, integrating flood resilience with local plans and regulations, capital budgeting, energy plans, natural or historic resource inventories and plans, park and open space planning, and plans to address targeted housing needs. The BCRC is available to assist towns, either as a principal consultant or with technical and data support services.

- **Mapping.** The BCRC utilizes a Geographic Information System (GIS) to assist with local and regional planning. A wide range of geographic data is available through the Vermont Center for Geographic Information (VCGI) and other online services that BCRC staff can acquire and use to support local and regional planning and plan implementation projects.
- **Grant Assistance.** The BCRC assists its member municipalities in the preparation of applications for grants to support development of comprehensive or special plans, energy plans, housing initiatives, transportation improvements, environmental projects, economic development programs, infrastructure studies and projects, and other projects designed to implement local plans.

14.2.2 Comprehensive Regional Planning and Regulatory Review

In addition to preparation and implementation of this regional plan, the BCRC conducts regional studies in a variety of areas that can be used to help guide development decisions and public and private investments throughout the region. The BCRC maintains a number of committees that provide support for these studies and implementation activities. Existing committees include: the Executive Committee, Transportation Advisory Committee, Brownfields Redevelopment Committee, Solid Waste Planning Committee, Working Lands Committee, Economic Development Committee, Energy Committee, and Development Review Committee.

The BCRC is a statutory party to state land use (Act 250) regulatory proceedings and may intervene in public utility (Section 248) hearings before the Vermont Public Utility Commission. On the advice of the Development Review Committee or the Energy Committee, the BCRC considers information and policies expressed in the regional plan to determine whether a project conforms to the regional plan, to request changes to the project, or to assert that a project should not be built as proposed. BCRC staff and committees conduct reviews of Act 250 and Section 248 projects and will actively participate in proceedings by attending hearings and providing testimony when it is determined that a project will have substantial regional impact. A development is considered to have ***substantial regional impact*** when it is determined by the BCRC to meet one or more of the following thresholds:

1. A development that may modify existing settlement patterns by:

a. locating in an area that does not currently contain development of a similar type or scale;
b. locating in a remote area, including any permanent development in an upland forest area; or
c. constituting a large-scale development occurring outside an established growth center.

2. A development that may significantly affect the capacity of regional public facilities or require their expansion, extension, or relocation by significantly increasing traffic on area roadways, generating large quantities of solid waste, creating high energy demands, or adding a substantial number of students to a regional educational facility.
3. A development that would significantly impact the region's economy by affecting the cost or availability of affordable housing in the region, affecting the cost or availability of energy in the region, creating a large number of new jobs, or initiating a new sector of economic activity in the region.
4. A development that will impact any regionally significant natural or cultural resource. These resources include, but are not limited to wildlife habitat, sand and gravel resources, important hydrological resources, unique and fragile natural areas, public water supply watersheds and wellhead protection areas, prime agricultural and forest soils, important scenic resources, and historic and archaeological resources.
5. A development that involves the construction of, or which would significantly impact the function of, important regional facilities including, but not limited to state highways, educational institutions, hospitals, recreational facilities, solid waste facilities, energy generation or transmission facilities, regional water or sewer facilities, bridges, dams, and airports.
6. A residential, commercial, or industrial development that, because of its large size, will result in impacts that will be felt beyond the municipal borders.
7. A development lying within two or more municipalities, or a development dependent upon the infrastructure or community services of a neighboring municipality.

14.2.3 Transportation Planning

The BCRC contracts annually with the Vermont Agency of Transportation to ensure that local transportation projects and priorities are coordinated with the state. The BCRC works with local officials and its Transportation Advisory Committee to identify priority projects in the region and reviews plans for improvements to state highways and bridges. The BCRC also develops corridor management plans, participates in efforts to extend and improve regional rail service, prepares bicycle and

pedestrian and traffic calming plans, and assists with the review and development of public transportation plans. The BCRC also assists with the preparation of intersection, roadway, and bicycle-pedestrian facility designs that are consistent with “complete streets” and healthy community design principles. When requested, the BCRC provides technical assistance to towns and villages seeking to complete infrastructure inventories and traffic studies and offers project management services to any constituent community implementing local transportation facilities (LTF) projects.

14.2.4 Environmental Planning

The BCRC engages in a variety of environmental programs, cooperating with the Bennington County Conservation District, US Forest Service, Vermont Agency of Natural Resources, regional watershed alliances, the Vermont Land Trust, and other organizations. Projects include river basin plans, land and water conservation projects, water quality studies, and regional forest plans. Results of studies are presented at workshops, in technical bulletins, and directly to local officials by BCRC staff. The BCRC administers a brownfields redevelopment program, with activities subject to receipt of grant funding, focusing on assessment and remediation plans for properties with known or suspected environmental contamination in designated growth centers, villages, and downtowns, and at potential renewable energy generation sites.

14.2.5 Community and Economic Development

Maintaining a fully staffed and effective community and economic development program at the BCRC is seen as an essential service to member communities. Accordingly, the BCRC maintains a sustainable community development program focused on identification and improvement of local assets that support economic development in the region. Recognizing that a lack of public water and sewer infrastructure is primarily responsible for limiting growth and development in many of the region’s village centers, the BCRC helps towns and villages plan for increased capacity for compact mixed-use development in these areas. The BCRC cooperates with organizations, local businesses, and business organizations throughout the region and beyond to advance specific projects related to workforce development, housing, educational services, healthy communities, local food systems, downtown and village center redevelopment, and conservation and wise development of energy and natural resources.

14.2.6 Emergency Management Planning

The BCRC assists towns and villages in completing local emergency operations and hazard mitigation plans. The BCRC provides training and support for development of local food resilience plans and related intermunicipal agreements, support for the Local Emergency Planning Committee and its emergency response exercises, and special implementation projects funded through the hazard mitigation grant program. The BCRC provides staff support to the state Emergency Operations Center (EOC)

during an emergency and assists with damage reporting and recovery planning as needed.

14.2.7 Energy Planning

The BCRC maintains and administers a regional energy plan and helps municipalities develop enhanced energy plans with adopted implementation strategies. The commission works on energy conservation projects with local energy committees, Efficiency Vermont, the Vermont Energy and Climate Action Network, the Vermont Agency of Transportation, and other cooperating businesses and organizations. The commission actively participates in Section 248 reviews of energy generation and transmission projects proposed to be located within the region. The commission may provide guidance to renewable energy developers to help them conceive projects that evidence a high net energy yield without adversely impacting critical natural or cultural resources. This is aided by referencing the maps and guidelines expressed in the regional energy plan as well as the region's municipal enhanced energy plans.

14.2.8 Solid Waste Planning and Management

The BCRC contracts annually with the Bennington County Solid Waste Alliance (BCSWA) to manage its solid waste reduction, recycling, and disposal program. As such, the commission provides a dedicated staffer and information, resources, and technical assistance to help residents, businesses, and other organizations in the region manage their solid waste according to state and federal law. The dedicated BCRC staffer also spearheads the development and updating of the Solid Waste Implementation Plan for the thirteen-town BCSWA every five years as required by Vermont's materials management rules.

14.2.9 Community Public Health

All of the actions taken by the BCRC and member communities consider effects on public health and wellbeing. The BCRC works with Southwestern Vermont Medical Center, the Vermont Department of Health, and other health care organizations and interest groups to advocate for healthy and inclusive community design principles in transportation and land use projects. The BCRC regularly applies for funding from the Vermont Department of Health to implement projects and programs designed to reduce unhealthy behaviors and to create communities that encourage safe and healthy lifestyles.

Appendix A Regional Energy Methodologies & Analyses

Energy Planning Tools

Energy data and targets presented in Chapter 13 were derived using the following tools provided by the Vermont Department of Public Service:

- LEAP Regionalized Targets – CAP Mitigation Scenario was used to set energy reduction and transition targets for the residential, commercial, and transportation sectors.
- Municipal Consumption Template – As provided by the Vermont Department of Public Service, 2023, and used to determine municipal and regional energy consumption for transportation and heating.
- Analysis & Targets Spreadsheet – Used to develop commercial weatherization targets.
- Energy Efficiency Utility (EEU) Potential Study Data – Used to determine achievable electric efficiency savings.
- Generation Scenarios Tool – Used to develop renewable energy generation targets for the years 2025, 2035, and 2050.
- Rooftop Solar Potential by Town – As determined by the Vermont Department of Public Service Rooftop Solar Generation Planning Tool based on the number of roofs, total roof area, and roof aspects in each town.

Calculating Regional Energy Use by Sector

The following assumptions and steps were made to calculate regional energy use for the transportation, residential thermal, commercial thermal, commercial and industrial electric, and residential electric sectors.

- Residential and commercial/industrial electric usage was obtained from the annual Efficiency Vermont report provided to regional planning commissions and converted from kilowatt-hours to MMBTUs.
- Transportation, residential, and commercial thermal energy use were calculated using the Municipal Consumption Template from the Vermont Department of Public Service.
- Electricity used for residential heating and transportation are accounted for in the residential electric sector to avoid double counting.
- The Municipal Consumption Template separately calculates electricity used for transportation in the form of EVs and PHEVs, so that amount was deducted from

the total transportation energy use and added to the residential electric usage figure.

- To account for electricity used in the residential thermal sector, 2022 ACS 5-year estimates of homes heated with electricity were used. According to the 2022 ACS data, approximately 6.1% of Bennington County homes were heated with electricity, so 6.1% was deducted from the total residential thermal energy result.
- Residential thermal energy use as calculated from the Municipal Consumption Template is 1,637,835 MMBTUs. 6.1% of that is 99,908 MMBTUs. Subtracting that from the Municipal Consumption Template result for residential thermal energy use equals 1,537,927 MMBTUs.

Table A-1. Energy Use by Sector in the Bennington Region.

Sector	Usage (MMBTUs)
Transportation	1,178,830
Residential thermal	1,537,927
Commercial thermal	1,257,211
Residential electric	479,195
Commercial and Industrial electric	487,021

Calculating Annual Production of Distributed Generation Resources

The Vermont Department of Public Service provided regional planning commissions with a spreadsheet of all on-grid distributed generation in the state which included the capacity of each site in kilowatts. The capacity of all solar, wind, and hydro sites in the Bennington region were totaled and converted into megawatts. To get the total megawatt hours of production, the following calculations were performed:

1. **Solar** 21.91 (MW of installed capacity) * 8760 (hours per year) * 0.15 (capacity factor) = 28,789.74 MWh
2. **Wind** 0.012 (MW of installed capacity) * 8760 (hours per year) * 0.225 (capacity factor) = 23.65 MWh
3. **Hydro** 1.127 (MW of installed capacity) * 8760 (hours per year) * 0.5 (capacity factor) = 4,936.26 MWh

The resulting total regional distributed generation capacity for solar, wind, and hydro is 33,749.65 MWh.

Capacity factors for solar, wind, and hydro were derived from Generation Scenarios Tool. For more information on this methodology, see PSD's Guidance for Regional and Municipal Enhanced Energy Planning Standards.

Table A-2. Distributed Energy Generation (DG) by Town in the Bennington Region, 2024. Note: Battery DG not included in total annual production result.						
Town	**Total DG Capacity (MW)**	**Solar (MW)**	**Wind (MW)**	**Hydro (MW)**	**Battery (MW)**	**Annual Production (MWh)**
Arlington	1.10	0.90	0	0	0.195	1,187.9
Bennington	7.95	7.24	0	0.375	0.335	11,155.9
Dorset	1.15	0.88	0	0	0.274	1,149.8
Landgrove	0.32	0.19	0	0	0.134	247.0
Manchester	3.48	3.08	0	0	0.405	4,040.6
Peru	0.71	0.62	0.0042	0	0.077	828.2
Pownal	6.20	5.54	0.0078	0.485	0.155	9,423.2
Rupert	0.49	0.41	0	0	0.086	533.5
Sandgate	0.17	0.14	0	0	0.029	189.2
Shaftsbury	2.49	2.14	0	0	0.349	2,815.9
Stamford	0.38	0.31	0	0	0.070	408.7
Sunderland	0.51	0.42	0	0.250	0.096	1,644.3
Woodford	0.09	0.04	0	0.017	0.035	125.7
Total	**25.04**	**21.91**	**0.0120**	**1.127**	**2.240**	**33,749.7**

Renewable Energy Generation Targets by Town

The following assumptions and steps were made to calculate renewable energy generation targets by town in the Bennington region:

- Generation targets for renewable energy sources were derived from the Generation Scenarios Tool and based on an assumption of 20% in-state generation.
- Regional incremental targets were broken out by town using a 50% population multiplier and 50% energy demand multiplier.
- The acres of land available were updated in the Generation Scenarios Tool based on the most recent BCRC mapping exercise.
- The new acreage values for each town reflect the amount of prime and secondary land within one mile of 3-phase power for both wind and solar.
- The BCRC overrode several target values generated by the tool to better account for land availability and grid headroom based on BCRC maps.
- The wind target values for all towns were overridden based on the wind resource potential map for the region.

- Each town's percentage of the total regional land available for wind development was calculated and then used to determine each town's contribution to the regional capacity goal for 2025, 2035, and 2050.

Energy Data & Targets for Incorporated Villages

Some energy data may not be available for the region's three incorporated villages. As needed, the BCRC will develop methodologies to disaggregate the LEAP targets and the renewable energy generation targets for North Bennington, Old Bennington, and Manchester Village.

Determining Municipal Wind Capacity Targets

Table A-3. Wind Energy Targets by Town in the Bennington Region, 2024.

Town	Prime Wind (acres)	Secondary Wind (acres)	% Regional Total	2025 Goal (MW)	2035 Goal (MW)	2050 Goal (MW)
Arlington	1	1,389	5.36	0.24	0.46	0.67
Bennington	33	1,801	6.95	0.31	0.60	0.87
Dorset		872	3.36	0.15	0.29	0.42
Glastenbury						
Landgrove	5	257	0.99	0.04	0.09	0.12
Manchester		627	2.42	0.11	0.21	0.30
Peru	8	5,098	19.67	0.87	1.69	2.46
Pownal	1	2,780	10.72	0.47	0.92	1.34
Rupert	682	7,247	27.96	1.23	2.40	3.49
Sandgate						
Shaftsbury	10	338	1.30	0.06	0.11	0.16
Stamford		3,617	13.95	0.61	1.20	1.74
Sunderland	6	741	2.86	0.13	0.25	0.36
Woodford		1,155	4.46	0.20	0.38	0.56
Totals	**746**	**25,922**	**100**	**4.40**	**8.60**	**12.50**

Table A-4. 2025 Incremental Regional Capacity Targets by Town (MW)					
Town	**Solar**	**Rooftop Solar**	**Wind**	**Hydro**	**Total**
Arlington	1.1	0.8	0.2	0	2.1
Bennington	4.5	3.5	0.3	0.1	8.4
Dorset	0.6	0.4	0.1	0	1.1
Glastenbury	0	0	0	0	0
Landgrove	0.1	0.1	0.3	0	0.5
Manchester	1.6	1.3	0.1	0	3
Peru	0.3	0.2	0.8	0	1.3
Pownal	2.1	0.6	0.5	0	3.2
Rupert	0.2	0.1	1.2	0	1.5
Sandgate	0	0.1	0	0	0.1
Shaftsbury	1.0	0.8	0	0	1.8
Stamford	0.2	0.1	0.6	0	0.9
Sunderland	0.2	0.2	0.1	0	0.5
Woodford	0.1	0.1	0.2	0	0.4
Totals	**12.0**	**8.3**	**4.4**	**0.1**	**26.0**

Table A-5. 2035 Incremental Regional Capacity Targets by Town (MW)					
Town	**Solar**	**Rooftop Solar**	**Wind**	**Hydro**	**Total**
Arlington	1.9	1.5	0.5	0	3.9
Bennington	10.1	7.9	0.6	0.2	18.8
Dorset	1.5	1.2	0.3	0	3.0
Glastenbury	0	0	0	0	0
Landgrove	0.1	0.1	0.1	0	0.3
Manchester	3.6	2.8	0.2	0.1	6.7
Peru	0.6	0.5	1.7	0	2.8
Pownal	1.7	1.3	0.9	0	3.9
Rupert	0.4	0.3	2.4	0	3.1
Sandgate	0	0.2	0	0	0.2
Shaftsbury	2	1.5	0.1	0	3.6
Stamford	0.4	0.3	1.2	0	1.9
Sunderland	0.6	0.5	0.2	0	1.3
Woodford	0.2	0.2	0.4	0	0.8
Totals	**23.1**	**18.3**	**8.6**	**0.3**	**50.2**

Potential Sites for Biomass Combined Heat and Power (CHP) Projects

This list includes facilities that are 40,000 square feet or larger or large clustered facilities on a shared campus. Other facilities in the region may also be suitable sites for CHP projects depending on site-specific conditions.

Table A-6. Potential Biomass CHP Sites in the Bennington Region.

Arlington	**Dorset**
Arlington Memorial High School	Dorset School
Fisher School	Long Trail School
Quadra-Tek	
Stow-Away Self Storage	**Manchester**
	Equinox Golf Club
Bennington	Burr & Burton Academy
Southwestern VT Medical Center	RK Miles
NSK Steering Systems	Manchester Elementary Middle School
Vermont Veterans Home	
Former Energizer Battery Factory	**Peru**
Kaman Composite	Bromley Village
Former Southern VT College Campus	
Downtown - Putnam Block	**Pownal**
Bowen Road Industrial Park	Pownal Elementary School
Maneely Corporate Park	
Morse Industrial Park	**Shaftsbury**
National Hanger Co.	Shaftsbury Elementary School
Bennington Square Shopping Center	Peckham Industries
Walmart-Price Chopper Shopping Center	
Hannaford Plaza Shopping Center	**Stamford**
Monument Elementary School	Town office/school building
Molly Stark School	
Bennington Elementary School	
Sacred Heart School	
Catamount Sports Center	

Acknowledgements:

The energy plan element of this regional plan was developed with input from the Bennington Regional Energy Committee and the Department of Public Service. Parts of the energy element of this plan for the Bennington region were modeled after the energy chapter and related appendix of the Regional Plan for the Northeast Kingdom prepared and adopted by the Northeastern Vermont Development Association.

Appendix B Implementation Matrix

PEOPLE									
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
4.5.1	Support efforts to connect newcomers with broad initiatives and encourage consistent coordination among local groups, regional organizations, and employers.	A vibrant, welcoming and accessible community where residents feel a sense of belonging and participate in their governance.	> Dedicated source(s) of information for newcomers to easily access	> Connect with organizations to understand current conditions and needs	Community and Economic Development Program Manager	Vermont Begins Here, SYP; SWVT Chamber, employers	Ongoing	$$	NBRC	Economic Development
4.5.2	Ensure that BIPOC entrepreneurs are connected to statewide resources.	A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> # of connections facilitated	> Connect with organizations to understand current conditions and needs	Community and Economic Development Program Manager	VPCN, SWVT Chamber, MBA, BBC, VSBDC	Ongoing	$		Economic Development
4.5.3	Work with organizations that have partnered with federal refugee resettlement agencies to ensure that new Americans settling in the region are welcomed in ways that secure their continued presence in the region.	A vibrant, welcoming and accessible community where residents feel a sense of belonging and participate in their governance.	> # of new Americans who settle in the region > # of new Americans who stay in the region after X years	> Connect with organizations to understand current conditions and needs	Community and Economic Development Program Manager	BCOA, Grace Initiative Global, ECDC	Ongoing	$$		
4.5.4	Pursue public outreach efforts with an awareness of the growing diversity of the region, in both its US-born and foreign-born populations. Expectations for representative input – and the resources needed to reach a more diverse public – should be adjusted accordingly.	A vibrant, welcoming and accessible community where residents feel a sense of belonging and participate in their governance.	> Use of a variety of engagement strategies across projects	> Track demographic trends on an annual basis > Stay up-to-date on best practices for inclusive community engagement	Community and Economic Development Program Manager	Queer Connect, VCIL, BCOA, ECDC, SVCOA, other identity-based community organizations	Ongoing	$$	NBRC, NFC	Economic Development
4.5.5	Coordinate with regional partners to establish pipelines from targeted areas, including New York's Capital District, to sustain in-migration to meet workforce demands.	A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> # of new members of the workforce throughout the region > # of new members of the workforce from specific targeted areas	> Coordinate with regional employers to understand workforce needs	Community and Economic Development Program Manager	WEC, SWVT Chamber, employers	Short-term	$$ / $$		Economic Development

BBC = Better Bennington Corporation, BCOA = Bennington County Open Arms, ECDC = Ethiopian Community Development Council, MBA = Manchester Business Association, NBRC = Northern Border Regional Commission, NFC = Northern Forest Center, SVCOA = Southwestern Vermont Council on Aging, SWVT Chamber = Southwestern Vermont Chamber of Commerce, SYP = Shires Young Professionals, VCIL = Vermont Center for Independent Living, VPCN = Vermont Professionals of Color Network, VSBDC = Vermont Small Business Development Corporation, WEC = BCRC Workforce and Education Committee

HOUSING										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding	Potential Funding Sources	Also See
5.8.1	Assist municipalities to adopt plans with housing elements that assess housing issues and needs in their communities and that establish strategies to address the identified needs and to meet established targets.	A supply of housing sufficient to meet the needs of a diversity of social and income groups available in all communities in the region.	> # of municipal plans with housing elements and housing strategies	> Focus on town plans up for renewal first, then municipal consultations > Provide data to towns on issues, needs, and targets in their community > Recommend best practices for meeting established targets	Planning Program Manager, Regional Planners	Municipalities, community housing task forces, DHCD	Medium-term	$$	MPG	
5.8.2	Assist municipalities to adopt and implement local land use regulations that make provisions to allow for adequate supplies of quality and energy efficient housing of various sizes and types in appropriate densities.	A supply of housing sufficient to meet the needs of a diversity of social and income groups available in all communities in the region.	> # municipal plans with pro-housing regulations	> Identify towns in need of substantially updating regulations > Support Bylaw Modernization Grant applications > Recommend best practices for meeting established targets	Planning Program Manager, Energy Program Manager, Regional Planners	Municipalities, community housing task forces	Medium-term	$$	BMG	Land Use
5.8.3	Assist municipalities to pursue investments in infrastructure that support the development of new housing to meet the targets established in this plan.	A supply of housing sufficient to meet the needs of a diversity of social and income groups available in all communities in the region; Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region.	> # of municipalities pursuing infrastructure investments in core areas	> Identify towns interested in adding/expanding utilities infrastructure > Identify funding sources for expanding infrastructure in core areas	Planning Program Manager, Regional Planners	Municipalities, community housing task forces	Long-term	$$ / $$$	ANR, AOT	Utilities
5.8.4	Assist planning and development of new or rehabilitated quality housing that is affordable to residents of the region and to potential members of the workforce who are seeking housing in the area.	A supply of housing sufficient to meet the needs of a diversity of social and income groups available in all communities in the region.	> # of workforce housing projects in planning and development	> Identify areas of greatest need for new affordable housing > Collaborate with regional housing organizations to strategy development opportunities > Identify funding opportunities for affordable housing development	Planning Program Manager, Regional Planners	Municipalities, Shires Housing, VHCB, VHFA, private developers	Long-term	$$ / $$$	VHCB, VHFA, ACCD	Economic Development
5.8.5	Support development of additional housing that meets the needs of the region's seniors and residents with disabilities, as well as those with special needs and very low incomes.	A supply of housing sufficient to meet the needs of a diversity of social and income groups available in all communities in the region.	> # of accessible housing projects in planning and development	> Identify areas of greatest need for accessible housing > Collaborate with regional housing organizations to strategy development opportunities > Identify funding opportunities for affordable housing development	Planning Program Manager, Regional Planners	Housing organizations, community housing task forces, private developers, DHCD, VHFA, VHCB	Long-term	$$ / $$$	VHCB, VHFA	

HOUSING										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding	Potential Funding Sources	Also See
5.8.6	Prioritize development of housing on vacant "infill" lots, in the upper stories of downtown buildings, and remediation and redevelopment of vacant or underused buildings and "brownfield" sites for housing in compact centers.	A supply of housing sufficient to meet the needs of a diversity of social and income groups available in all communities in the region.	> # of municipal regulations that allow for infill development > # of brownfield sites identified for / in process of remediation	> Identify infill and remediation opportunities throughout the region > Support small-scale developers interested in working on infill housing	Planning Program Manager, Regional Planners	Municipalities, community housing task forces, housing organizations, private developers	Long-term	$$ / $$$	Brownfield Program, VHCB, VHFA	Natural Resources, Land Use, Economic Development
5.8.7	Support state and local efforts to house people experiencing homelessness.	A supply of housing sufficient to meet the needs of a diversity of social and income groups available in all communities in the region.	> Rates of people experiencing homelessness in the region	> Identify local and state efforts to reduce and eradicate homelessness > Offer technical assistance and support to municipalities, non-profits, and other efforts to reduce homelessness	Community & Economic Development Program Manager, Planning Program Manager, Regional Planners	BCCH, ACCD, other social service agencies	Ongoing	$ / $$	DHCD, VHFA, VCF	
5.8.8	Encourage and facilitate the use of public assets such as buildings, land, and financing, to help reduce the cost of housing development and support creation of affordable housing.	A supply of housing sufficient to meet the needs of a diversity of social and income groups available in all communities in the region.	> # of housing projects in planning or development on public assets	> Identify public assets suitable for housing development > Collaborate with municipalities, regional housing organizations, and developers to pitch potential projects	Community & Economic Development Program Manager, Planning Program Manager, Regional Planners	Municipalities, community housing task forces, housing organizations, private developers	Long-term	$$ / $$$	VHCB, VHFA	Economic Development
5.8.9	Organize annual regional housing summit to highlight housing development programs and report on progress toward the region's housing targets.	A supply of housing sufficient to meet the needs of a diversity of social and income groups available in all communities in the region.	> # of annual regional housing summits	> Review successes and challenges of previous year's summit > Initiate planning for next year's summit	Planning Program Manager, Regional Planners	Municipalities, community housing task forces, housing organizations, private developers, DHCD, VHFA	Ongoing	$	Housing Navigator Funds	

ACCD = Vermont Agency of Commerce and Community Development, ANR – Vermont Agency of Natural Resources, AOT = Vermont Agency of Transportation, BCCH = Bennington County Coalition for the Homeless, BMG = Bylaw Modernization Grant, DHCD = Vermont Department of Housing and Community Development, MPG = Municipal Planning Grant, VCF = Vermont Community Foundation, VHCB = Vermont Housing and Conservation Board, VHFA = Vermont Housing Finance Agency

EDUCATION AND CHILDCARE										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
6.6.1	Work with the region's educational providers to help maintain a high-quality educational system that meets the needs of residents of all ages and that supports regional economic development.	Outstanding educational and vocational training services that meet the needs of residents and area businesses.	> Enrollment numbers > Educational performance metrics	> Assess current conditions of educational institutions > Identify gaps in the educational system > Seek additional funding/resources to fill gaps and maintain strengths	Community and Economic Development Program Manager, Regional Planners	SVSU, BRSU, private schools, large-scale employers, VAE	Ongoing	$ / $$ / $$$	VAE, US Ed, school boards	Economic Development
6.6.2	Encourage school districts and supervisory unions to regularly assess spending levels and evaluate potential policy and operational changes that can improve cost effectiveness.	Outstanding educational and vocational training services that meet the needs of residents and area businesses.	> Annual budgets	> Assess current and recent trends in spending levels for SUs > Recommend best practices to improve cost effectiveness	Community and Economic Development Program Manager, Regional Planners	SVSU, BRSU, school districts, VAE	Ongoing	$	VAE, US Ed, school boards	
6.6.3	Monitor enrollment trends at public and private schools to aid in the evaluation of operational or structural changes that may be appropriate.	Outstanding educational and vocational training services that meet the needs of residents and area businesses.	> Enrollment numbers	> Establish recent enrollment trends > Compare to broader regional context to evaluate strengths and weaknesses > Recommend best practices for any appropriate changes	Community and Economic Development Program Manager, Regional Planners	Public and private schools	Ongoing	$ / $$	VAE, US Ed, school boards	
6.6.4	Support cooperative financial planning between school districts and municipal governments to minimize year-to-year fluctuations in property taxes.	Outstanding educational and vocational training services that meet the needs of residents and area businesses.	> Annual budgets > Property tax changes year to year	> Evaluate annual budgets for school districts and project anticipated needs > Work with municipalities to balance school budgets with minimal property tax increases	Community and Economic Development Program Manager, Regional Planners	Municipalities, school districts, VAE	Ongoing	$ / $$	VAE, US Ed, school boards	
6.6.5	Encourage capital budgets and programs by municipalities and school districts to assist in forecasting major future education expenditures.	Outstanding educational and vocational training services that meet the needs of residents and area businesses.	> Annual capital budgets	> Evaluate anticipated capital expenses and create a 5- to 10-year capital plan > Work with municipalities to balance anticipated needs with municipal budgets	Community and Economic Development Program Manager, Regional Planners	Municipalities, SVSU, BRSU, VAE	Ongoing	$ / $$	USDA Community Facilities Program, VAE, US Ed, school boards	
6.6.6	Help pursue arrangements that allow for community use of school facilities for physical activity and recreation.	Enhanced recreational opportunities for residents and visitors that provide public health, quality of life, and economic benefits.	> # of programs connecting community members with school facilities	> Map school facilities that could be community assets > Determine costs associated with public use (when available) > Coordinate arrangements with municipalities for cost-sharing	Community and Economic Development Program Manager, Regional Planners	Municipalities, school districts, community recreational groups	Short-term	$$		
6.6.7	Sponsor workforce development initiatives that emphasize increasing awareness of career opportunities within the region, and that match education and training with the needs of area employers.	Outstanding educational and vocational training services that meet the needs of residents and area businesses; A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> # of initiatives, including # of annual job fairs > Trends of local students who find work with area employers	> Coordinate with partners to host at least two annual job fairs, the annual Financial Reality Fair, and the annual Sophomore Summit	Community and Economic Development Program Manager, Regional Planners	VDL, SWVT Chamber, SVSU, BRSU, MBA, BBC, VSBDC, HireAbility, regional employers, WEC	Ongoing	$	VDL	Economic Development

EDUCATION AND CHILDCARE										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
6.6.8	Expand the integration of Bennington's four colleges into the region's communities through student internships, development of student-oriented local businesses, improved transportation and communication links, and exploring the possibility of offering on-site college classes in the Northshire.	Outstanding educational and vocational training services that meet the needs of residents and area businesses; A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> # of internships / job placements with local employers	> Facilitate gathering of representatives from four colleges, local employers, and other key community players to understand wants and needs > Identify funding opportunities to support this work	Community and Economic Development Program Manager, Regional Planners	Bennington College, CCV, Vermont Tech, Northeast Baptist College, SWVT Chamber, MBA, BBC, regional employers	Ongoing	$ / $$	VAE	
6.6.9	Support adult learning and vocational training opportunities.	Outstanding educational and vocational training services that meet the needs of residents and area businesses; A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> Enrollment trends in adult and vocational education programs	> Meet with partners to understand wants and needs > Identify funding opportunities to support this work	Community and Economic Development Program Manager, Regional Planners	SVCDC, Tutorial Center, CCV, BCRC Workforce and Education Committee, VSBDC, VAE, employers	Ongoing	$ / $$	VDL	
6.6.10	Support the provision of quality childcare and early childhood education facilities. Assess whether all parts of the region are adequately served and if additional capacity is needed to help grow the local workforce.	Safe and affordable childcare available in communities throughout the region.	> # of childcare facilities > distribution of childcare facilities throughout region > growth trends relative to demographic trends	> Map childcare facilities to assess current coverage > Meet with providers and parents to understand wants and needs	Community and Economic Development Program Manager, Regional Planners	Childcare providers, UCS, Sunrise Family Resource Center, Let's Grow Kids, employers	Ongoing	$ / $$ / $$$	USDA Community Facilities Program, VAE, US Ed, school districts	People, Economic Development
6.6.11	Encourage greater coordination between childcare centers and other regional institutions that impact or are impacted by long-term educational and well-being outcomes (such as social determinants of health).	Safe and affordable childcare available in communities throughout the region.	> # of connections facilitated	> Facilitate gathering of key community players to understand wants and needs > Identify funding opportunities to support this work	Community and Economic Development Program Manager, Regional Planners	UCS, SVMC, childcare providers, SVSU, BRSU, VDH	Ongoing	$ / $$		
6.6.12	Develop and maintain comprehensive broadband services for schools, colleges, libraries, and the general population of the region.	Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region.	> % of schools, libraries, colleges connected to comprehensive broadband services > reach of comprehensive broadband services throughout the region	> Map comprehensive broadband services to understand current coverage > Connect with educational institutions to understand wants and needs	Community and Economic Development Program Manager, Regional Planners	CUD, schools, colleges, libraries, vocational programs	Short-term	$$		Utilities

BBC = Better Bennington Corporation, BRSU = Bennington Rutland Supervisory Union; CCV = Community College of Vermont, CUD = Communications Union District, MBA = Manchester Business Association, SVMC = Southwestern Vermont Medical Center, SVSU = Southwestern Vermont Supervisory Union, SVCDC = Southwestern Vermont Career Development Center, SWVT Chamber = Southwestern Vermont Chamber of Commerce, UCS = United Counseling Service, USDA = U.S. Department of Agriculture, US Ed = U.S. Department of Education, VAE = Vermont Agency of Education, VDH = Vermont Department of Health, VDL = Vermont Department of Labor, VSBDC = Vermont Small Business Development Corporation, WEC = BCRC Workforce and Education Committee

ECONOMIC DEVELOPMENT									
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
7.4.1	Deploy the Southern Vermont Comprehensive Economic Development Strategy. Position the CEDS publicly as a vital tool, articulating and detailing actionable pathways to strengthen businesses and support the people who contribute to them.	A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> engagement with the CEDS	> Create accessible platform for engaging with CEDS > Create tools for community members to use CEDS	Community and Economic Development Program Manager	BDCC, SWVT Chamber, CEDS working group, regional employers	Ongoing	$		
7.4.2	Secure Economic Development District from the US EDA to bring annual federal funding for economic development activities to the region. Ensure that clear plans are in place to guide the highest and best use of the resource.	A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> Economic Development District formalization > Clear plans describing funding opportunities and their implementation	> Apply for EDD > Develop specific plans for strategic use of the resources	Community and Economic Development Program Manager	BDCC, SWVT Chamber, CEDS working group	Year 1	$$$	US EDA	
7.4.3	Support the reuse and redevelopment of existing physical and structural assets wherever possible. Engage with existing employers to support their expansion, and local entrepreneurs who wish to enter the marketplace.	A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> # of existing assets identified for potential redevelopment > Successful redevelopment of existing assets	> Identify existing assets with potential for redevelopment > Coordinate with employers and entrepreneurs to share resources > Identify funding resources for redevelopment	Community and Economic Development Program Manager	ACCD, NBRC, SBDC, municipalities, employers, private developers, local lenders	Ongoing	$$ / $$$	Brownfields Program, NBRC, NFC	Land Use, Housing
7.4.4	Identify and work with external site selection firms that can promote existing sites to a broader client base with ready access to capital.	A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> Connection with external site selection firms > Redevelopment of existing assets	> Identify site selection firms > Prepare information on local resources	Community and Economic Development Program Manager	Site selection firms, municipalities, VEDA	Ongoing	$ / $$		
7.4.5	Collaborate to increase labor force participation rates among the region's discouraged and disconnected workers. Research innovative practices from around the country with potential applicability.	A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> Change in labor force participation rates among underemployed workers	> Evaluate labor force participation rates among selected community members > Identify relevant partners and experts > Recommend best practices	Community and Economic Development Program Manager	VDL, workforce development experts, community organizations, WEC	Short-term	$$	NBRC	
7.4.6	While workforce and population demands remain, work to identify potential and develop reliable hubs for relocation in the Northeast.	A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> # of hubs for relocation within the Northeast	> Identify key regional partners and employers > Identify potential sites for relocation > Identify funding sources	Community and Economic Development Program Manager	Regional employers, private developers, SWVT Chamber	Long-term	$$ / $$$	NBRC, NFC	People
7.4.7	Prioritize the utilization of existing developable space in the region's many business parks. Engage with property managers to ensure offerings are adequately marketed.	A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> # of existing developable spaces in business parks > # of property managers connected with	> Identify underutilized space in regional business parks > Connect with property managers to market spaces	Community and Economic Development Program Manager	ACCD, EV, VEDA, property managers, developers, employers	Short-term	$ / $$	NBRC, VEDA	
7.4.8	Maintain and enhance the variety and versatility of the existing regional economy. Foster the positive and supportive milieu that exists between and across sectors.	A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> trends for variety within regional economy	> Establish understanding of current diversity within regional economy > Facilitate connections within and across sectors	Community and Economic Development Program Manager	Employers, small business owners, SWVT Chamber, MBA, BBC	Ongoing	$		

ECONOMIC DEVELOPMENT										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
7.4.9	Build strong relationships between local employers and municipal officials. Provide opportunities for parties to engage and discuss topics of mutual interest and, where appropriate, opportunities for mutual investment.	A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> # of connections facilitated between employers and municipal officials	> Facilitate connections between employers and municipal officials > Identify opportunities for mutual investment	Community and Economic Development Program Manager, Regional Planners	Municipal officials, local employers, SWVT Chamber	Ongoing	$		
7.4.10	Work closely with municipalities to advocate for the development of local economic development strategies, and for the continual implementation of existing strategies.	A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> # of strengthened economic development strategies in municipal plans	> Identify municipalities with upcoming plan updates > Work with them to develop specific economic development strategies and implementation plans	Community and Economic Development Program Manager, Regional Planners	Municipal officials	Ongoing	$ / $$	MPG	
7.4.11	Continue to foster economic development cooperation throughout the region. Ensure that regional economic development conversations benefit from regional representation.	A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> Coordination between key players in regional economy	> Facilitate connections between Northshire and Southshire businesses > Identify opportunities for regional collaboration	Community and Economic Development Program Manager, Regional Planners	BDCC, SWVT Chamber, municipal officials, local businesses	Ongoing	$		
7.4.12	Make effective use of the region's abundant natural resources as a base for economic development activities.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives; Enhanced recreational opportunities for residents and visitors that provide public health, quality of life, and economic benefits.	> Healthy growth of resource-based businesses	> Identify current resource-based businesses > Evaluate their needs and wants > Identify gaps in current ecosystem	Community and Economic Development Program Manager, Environmental Program Manager, Regional Planners	Resource-based businesses, FPR, NBRC, NFC, Outdoor Recreation Roundtable	Ongoing	$$ / $$$	NBRC, NFC	Natural Resources
7.4.13	Continue building on the workforce development programs, including signature events, that bring together service providers and users working to meet the needs of area residents.	A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> # of workforce development events	> Evaluate successes in recent workforce development programs and identify gaps in coverage > Map out signature events for coming year	Community and Economic Development Program Manager, Regional Planners	WEC, Schools, employers, small business owners, SWVT Chamber, MBA, BBC	Ongoing	$ / $$		Education and Childcare, Energy

ACCD = Vermont Agency of Commerce and Community Development, BBC = Better Bennington Corporation, BDCC = Brattleboro Development Credit Corporation, CEDS = Comprehensive Economic Development Strategy, EV = Efficiency Vermont, FPR = Vermont Department of Forests, Parks, and Recreation, MBA = Manchester Business Association, NBRC = Northern Border Regional Commission, NFC = Northern Forest Center, SBDC = Vermont Small Business Development Center, SWVT Chamber = Southwestern Vermont Chamber of Commerce, US EDA = U.S. Economic Development Agency, VDL = Vermont Department of Labor, VEDA = Vermont Economic Development Authority, WEC = BCRC Workforce and Education Committee

LAND USE										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
8.7.1	Work with municipalities to encourage plan policies and zoning regulations that strive to retain a clear boundary between the urban centers and villages and the countryside, by concentrating new developing in and around established urban centers and villages, avoiding scattered development that is remote and has little relationship to existing settlement patterns, and maintaining distinctive edges between urban and village centers and rural countryside.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside.	> # of municipal regulations identifying village or urban centers > # of municipal plans emphasizing concentrated development in centers and edges between centers and rural areas	> Review plans and bylaws to identify municipalities lacking strong language about concentrated development > Identify funding sources to support substantial updates > Recommend best practices for updates > Support municipalities to achieve and maintain designations	Planning Program Manager, Regional Planners	Municipalities, DHCD	Short-term	$ / $$	MPG, BMG	Housing, Natural Resources
8.7.2	Encourage a variety of residential, commercial, industrial, cultural, and recreational uses, at relatively high densities in urban centers. Seek public investments in infrastructure and public services, and private development activities, to support the development or redevelopment of established urban centers rather than the creation of new concentrations of development. Such new development should be pedestrian-oriented and accommodate bicycle and transit infrastructure.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside; Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region; A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> # of municipal regulations allowing high densities in urban areas > # of municipalities pursuing investments in public infrastructure and services > # of sidewalk or bike lane extensions	> Identify existing urban centers that could benefit from updated land use regulations > Seek additional resources to support public investments in improved utilities and services > Assist in complete streets and pedestrian- and bike-oriented planning	Planning Program Manager, Senior Transportation Planner, Regional Planners	Municipalities, ACCD, AOT	Ongoing	$ / $$	Brownfield Program, TAP, Bike-Ped Enhancement grants	Transportation, Utilities
8.7.3	Public investments and private initiatives should support growth in existing or planned village areas. New development should respect the small scale and historic character of existing village development and include pedestrian-oriented features and infrastructure.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside.	> # of municipal regulations allowing higher densities in village centers > # of municipalities pursuing investments in public infrastructure and services within village centers > # of sidewalk or bike lane extensions	> Identify existing village centers that could benefit from updated land use regulations > Seek additional resources to support public investments in improved utilities and services > Assist in complete streets and pedestrian- and bike-oriented planning	Community & Economic Development Program Manager, Planning Program Manager, Regional Planners	Municipalities, ACCD, AOT	Ongoing	$ / $$	Brownfield Program, TAP, Bike-Ped Enhancement grants	Transportation, Utilities

LAND USE										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
8.7.4	In rural areas, emphasize the conservation and use of natural resources. Low-density residential, small-scale commercial, and compatible recreational uses are appropriate in rural areas. Development should reflect historic settlement patterns and preserve important resources, including productive agricultural soils. Creative land use techniques, including clustered development with open space protections, should be used to retain the integrity of special natural resources.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside; Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> # of municipalities with regulations limiting development in rural areas > # of municipalities pursuing clustered development or the like	> Identify rural areas that could benefit from updated land use regulations > Seek additional resources to support updates and creative land use techniques	Planning Program Manager, Environmental Program Manager, Regional Planners	Municipalities, ACCD	Ongoing	$ / $$	VHCB, VLT	Natural Resources
8.7.5	Encourage caution around planned commercial or mixed uses within existing roadside commercial zoning districts to avoid sprawl, traffic congestion, and safety hazards. Roadside commercial areas should not be expanded and should be retracted when feasible and appropriate.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside.	> Trends around transitional planning/zoning in roadside commercial areas > Emphasis on pedestrian- and bike-oriented development in car-dominated areas	> Identify roadside commercial areas with negative impacts on community > Work with municipalities to plan for transition away from car-dominated commercial strips > Assist with complete streets planning	Planning Program Manager, Senior Transportation Planner, Regional Planners	Municipalities, ACCD, AOT	Ongoing	$	AOT	
8.7.6	Emphasize conservation and the wise use of natural resources in upland forest areas. Encourage the acquisition of important upland forest parcels by the United States Forest Service for incorporation into the Green Mountain National Forest.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside; Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> % of land protected by conservation measures	> Identify important natural resources not currently under conservation / protection > Identify important upland forest parcels with potential for incorporation into the GMNF > Use VNRC's Resilient Communities Scorecard to evaluate municipalities' current performance	Planning Program Manager, Environmental Program Manager, Regional Planners	Municipalities, ANR, USFS, VNRC	Ongoing	$$	USFS, VLT, TNC	Natural Resources
8.7.7	Encourage the preservation of important historic sites, structures, districts, and archaeological sites. New development in historic areas should be architecturally compatible with its surroundings. Encourage the adaptive reuse of historic buildings, and renovation work that maintains the architectural integrity of historic structures.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> # of design regulations in historic areas	> Identify important historic sites throughout the region > Support designation / recognition of historic sites when relevant > Assist in drafting of design regulations	Planning Program Manager, Environmental Program Manager, Regional Planners	Municipalities, ACCD	Ongoing	$ / $$	VLT, TNC, PTV	Natural Resources

LAND USE									
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
8.7.8	Assist municipalities to develop comprehensive plans and land use regulations that reflect and enact the policies to achieve the desired pattern of development that emphasizes denser core areas surrounded by rural areas that preserve natural resources.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside.	> # of municipal plans emphasizing concentrated development in centers and edges between centers and rural areas	> Review plans and bylaws to identify municipalities in need of updating materials to reflect regional policies > Identify funding sources to support substantial updates > Recommend best practices for updates	Planning Program Manager, Regional Planners	Municipalities, DHCD	Short-term	$ / $$	MPG, BMG	
8.7.9	Conduct workshops, prepare model bylaws, and undertake other educational projects assist municipalities in developing and implementing land use plans and bylaws, mixed use development, form-based land use codes, land conservation, historic preservation, and village and downtown development.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside.	> # of workshops and trainings held > responsiveness to municipalities' interests and needs	> Continue planning quarterly brown bags > Assess interest in other key topics or types of trainings	Planning Program Manager, Regional Planners	Municipalities, DHCD	Ongoing	$	MPG, BMG, PTV	
8.7.10	Cooperate with towns and other interested organizations to promote new industrial development in the region consistent with regional plan policies.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside; A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> Thoughtful planning for industrial development in relevant municipalities	> Identify municipalities interested in fostering industrial development > Review land use regulations to ensure strategic development	Community & Economic Development Program Manager, Planning Program Manager, Regional Planners	Municipalities, regional employers	Ongoing	$ / $$		Economic Development
8.7.11	Promote continued coordination among municipalities to ensure that local land use plans remain consistent with the regional plan and compatible with each other.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside.	> % of municipal plans and land use regulations that align with and enact regional land use policies	> Review plans and bylaws up for most immediate renewal to identify discrepancies with regional policies > Recommend best practices for alignment	Planning Program Manager, Regional Planners	Municipalities	Ongoing	$		
8.7.12	Promote the development or redevelopment of historic downtowns through planning for capital investments, preparation of creative land use regulations, assistance in planning for the adaptive reuse of buildings and brownfield sites, and the development of riverfront parks and other public spaces.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside.	> # of design regulations in historic areas > pursuit of funding to preserve, revive, and redevelop historic downtowns	> Identify important historic sites throughout the region > Support designation / recognition of historic sites when relevant > Assist in drafting of design regulations > Identification of sites with redevelopment potential	Community & Economic Development Program Manager, Planning Program Manager, Regional Planners	Municipalities, ACCD	Ongoing	$ / $$ / $$$	Brownfields Program	Natural Resources, Economic Development

LAND USE										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
8.7.13	Residential development in village and urban centers should use a traditional grid street system whenever possible to improve vehicular and pedestrian connections. Prior to any large-scale residential development, a road system capable of handling traffic in a safe and efficient manner must either exist or be planned for immediate construction. The road system should be designed to safely accommodate vehicles, pedestrians, and cyclists, and to provide an attractive streetscape.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside; A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> % of new residential developments with grid street systems > % of new residential developments with complete street systems	> Review subdivision regulations to assess requirements for street systems > Identify any residential developments in progress	Planning Program Manager, Senior Transportation Planner, Regional Planners	Municipalities, ACCD, AOT	Ongoing	$ / $$	AOT	Transportation
8.7.14	Commercial developments should include an architectural and landscape design plan that complements the surrounding environment. The amount of noise, glare, and lighting observable from off-site locations must be minimized.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside; A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> % of new commercial developments with appropriate plans	> Review existing ordinances / legislation to assess alignment with this policy	Planning Program Manager, Regional Planners	Municipalities, developers	Ongoing	$		
8.7.15	Safe and efficient vehicular ingress and egress to new commercial development must be provided. Access onto roads where steep grades exist or within 400 feet of a major intersection should be avoided. Adjacent commercial developments should use combined curb cuts and connect parking lots and sidewalks internally whenever possible. Commercial uses that generate large numbers of traffic turning movements should be avoided along sections of highway with low sufficiency ratings, unless located within an established urban or village center.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside; A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> # new commercial developments with safe options for vehicular ingress and egress > # of new commercial developments with shared curb cuts, parking lots, and sidewalks	> Review existing ordinances / legislation to assess alignment with this policy	Planning Program Manager, Senior Transportation Planner	Municipalities, AOT, developers	Ongoing	$	BMG	Transportation
8.7.16	Large-scale (“big box”) retail stores may be permitted in urban centers only if they exhibit exemplary architectural and site design and are shown to be in the best interest of the community after completion of a comprehensive economic/community impact study.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside; A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> # of current design review ordinances > # of comprehensive economic / community impact studies	> Review existing ordinances / legislation to assess alignment with this policy	Planning Program Manager, Community and Economic Development Program Manager, Regional Planners	Municipalities, developers	Ongoing	$		Economic Development

LAND USE										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
8.7.17	Two or more adjacent industrial uses should be designed as a coordinated industrial park; land within industrial parks should be used primarily for industrial development.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside.	> # of coordinated industrial parks designed and developed	> Highlight locations of potential coordinated industrial parks > Reach out to developers of potential coordinated industrial parks	Planning Program Manager, Community and Economic Development Program Manager, Regional Planners	Municipalities, developers	Ongoing	$		
8.7.18	Industrial parks should not be located in areas where truck or employee vehicle traffic would be channeled onto local streets in residential neighborhoods. The amount of noise, vibration, dust, odor, glare, and lighting that affects nearby residential areas must be minimized. Industrial development should provide meaningful well-paying jobs and should not pollute the environment. Industries that make use of locally available natural resources are encouraged.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside; A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> # of industrial parks with egress onto residential streets > # of industrial parks with well-paying jobs > # of industrial parks that make use of local natural resources	> Review existing ordinances / legislation to assess alignment with this policy	Planning Program Manager, Community and Economic Development Program Manager, Senior Transportation Planner, Regional Planners	Municipalities, developers	Ongoing	$		Transportation, Economic Development

ACCD = Vermont Agency of Commerce and Community Development, AOT = Vermont Agency of Transportation, BMG = Bylaw Modernization Grant, DHCD = Vermont Department of Housing and Community Development, MPG = Municipal Planning Grant, PTV = Preservation Trust of Vermont, TAP = Transportation Enhancement Program, TNC = The Nature Conservancy, USFS = U.S. Forest Service, VHCB = Vermont Housing & Conservation Board, VLT = Vermont Land Trust, VNRC = Vermont Natural Resources Council

NATURAL RESOURCES									
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
9.10.1	Recommend the maintenance of an undisturbed buffer between developed areas and rivers, streams, lakes, ponds, or wetlands to ensure the protection of water quality and natural ecosystems. Agricultural and forestry activities should follow prescribed best management practices to minimize degradation of water quality. The density and type of new development in shoreland areas should be controlled to prevent environmental damage and protect resource values.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> # of stream setbacks adopted by municipalities	> Evaluate which municipalities lack protective language around surface water setbacks > Draft language for a buffer	Environmental Program Manager, Emergency Management Program Manager, Planning Program Manager, Regional Planners	Municipalities, ANR, BCCD	Short-term	$	VLT, Trout Unlimited	Climate Resilience
9.10.2	Development planning should include provisions for public access to recreation-friendly waterbodies. The intensity of use and access points should be limited in particularly fragile ecological areas.	Enhanced recreational opportunities for residents and visitors that provide public health, quality of life, and economic benefits; Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> Incorporation of public access points to waterbodies	> Identify recreation-friendly waterbodies > Identify fragile ecosystems around said waterbodies > Identify potential points of public access	Environmental Program Manager, Planning Program Manager, Regional Planners	Municipalities, ANR	Ongoing	$		
9.10.3	Discourage the construction of in-stream ponds and other activities that disturb aquatic ecosystems or degrade water quality. Encourage the removal of existing dams that no longer serve a useful purpose, and which do not have significant potential for energy generation.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> Regulations discouraging activities that degrade water quality > # of defunct dams removed	> Map non-operational existing dams > Evaluate potential of energy generation > Identify resources for removal	Environmental Program Manager, Emergency Management Program Manager, Planning Program Manager, Regional Planners	ANR, DPS	Long-term	$$ / $$$	EPA Clean Water Fund, HMGP	Climate Resilience
9.10.4	River corridor plans should be developed by towns and villages, with assistance from the BCRC, and implemented to allow the natural hydrological functions of waterways to occur without damaging natural ecosystems, public infrastructure, or private property.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> # of river corridor plans adopted and implemented	> Identify municipalities in need of river corridor plans > Recommend best practices for development and adoption	Environmental Program Manager, Emergency Management Program Manager, Planning Program Manager, Regional Planners	ANR, municipalities	Ongoing	$		Climate Resilience
9.10.5	Water quality should be maintained through comprehensive watershed management activities, including enforcement of appropriate standards for stormwater discharges, and direct and indirect discharges from highway maintenance and land development.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> water quality trends > adoption of standards for stormwater discharges	> Identify areas where water quality is compromised, especially by stormwater and highway discharges > Work with municipalities to strengthen watershed standards and management activities	Environmental Program Manager, Emergency Management Program Manager, Planning Program Manager, Regional Planners	Municipalities, ANR, AOT	Ongoing	$ / $$		

NATURAL RESOURCES										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
9.10.6	Protect aquifers and groundwater recharge areas, including all source protection areas, from activities or development that would adversely affect the quantity or quality of these waters. Municipal subdivision and health ordinances, and state regulations, must be strictly enforced to protect individual water supplies.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> aquifer and groundwater recharge protections adopted > enforcement of municipal ordinances to protect water supplies	> Identify areas where water quality is compromised, especially by stormwater and highway discharges > Work with municipalities to strengthen water quality protection ordinances	Environmental Program Manager, Emergency Management Program Manager, Planning Program Manager, Regional Planners	Municipalities, ANR, developers, landowners	Ongoing	$ / $$		
9.10.7	Support compact development patterns and alternative transportation systems that reduce the use of motor vehicles. Also support efforts to limit damage to the region's air quality that may result from pollution sources beyond the region.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside; A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> # of municipal plans or land use regulations with smart growth principles adopted > trends in non-car mobility	> Identify municipalities lacking smart growth planning principles in municipal plans > Recommend best practices	Planning Program Manager, Environmental Program Manager, Senior Transportation Planner, Emergency Management Program Manager, Regional Planners	Municipalities, ACCD, AOT, ANR	Ongoing	$ / $$	AARP	Housing, Land Use, Economic Development, Transportation
9.10.8	Promote growth in planned compact centers and discourage scattered development in outlying areas to discourage the loss or fragmentation of important agricultural and forest lands.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside.	> # of municipal plans or land use regulations with smart growth principles adopted	> Identify municipalities lacking smart growth planning principles in municipal plans > Recommend best practices	Environmental Program Manager, Planning Program Manager, Regional Planners	Municipalities	Ongoing	$ / $$		Housing, Land Use, Economic Development
9.10.9	Encourage the careful planning of land development occurring on or near important agricultural or forest soils to preserve the viability, or potential viability, of the site for farming and forest resource based activities.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside; Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> protections around prime agricultural soils	> Identify important agricultural soils and forest soils throughout the region > Advise municipalities on how to identify these lands and incorporate protections into town plans and land use regulations	Environmental Program Manager, Planning Program Manager, Regional Planners	Municipalities, ANR	Ongoing	$		
9.10.10	Identify land suitable for community gardens in or near villages and urban centers.	Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region.	> mapping prime land for community gardens > # of community gardens	> Identify suitable agricultural soils in and near villages and urban centers > Work with municipalities and local organizations to evaluate interest in community gardening > Identify funding resources	Environmental Program Manager, Planning Program Manager, Regional Planners	Municipalities, community organizations	Short-term	$ / $$		Utilities

NATURAL RESOURCES										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
9.10.11	Support agricultural and forestry based business in the region and the development of local and regional markets for primary and value-added products.	A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> Growth among agricultural or forestry businesses	> Identify current agricultural and forest-based businesses and assess their needs > Pursue additional resources to support upcoming businesses in this sector	Environmental Program Manager, Community and Economic Development Program Manager, Regional Planners	Agricultural and forestry based businesses, local markets	Ongoing	$ / $$		Economic Development
9.10.12	Developments should be planned and permitted in a manner that will not preclude the future utilization of important earth resources.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> Incorporation of resource protections in municipal land use regulations	> Identify important earth resources in the region > Work with municipalities to implement protections for those resources	Environmental Program Manager, Planning Program Manager, Regional Planners	Municipalities	Ongoing	$		
9.10.13	The extraction and processing of earth resources and the disposal of wastes must not have an unduly harmful impact on the environment or surrounding land uses and development. Upon completion of extraction and processing, the site should be restored and left in a condition suited for an approved alternative use.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> adoption of resource protection regulations > % of sites restored after extraction	> Identify current and potential sites for resource extraction > Work with municipalities to implement protections for post-extraction clean-up	Environmental Program Manager, Planning Program Manager, Regional Planners	Municipalities, industrial businesses	Ongoing	$		
9.10.14	Carefully plan an activity or development in the vicinity of important natural areas, fish habitat, or wildlife habitat to avoid adverse impacts to the resources. The objectives of maintaining protective riparian and shoreland buffers, wildlife corridors, and avoiding habitat fragmentation should guide natural area planning in the region.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> # of buffers, wildlife corridors, and other regulations adopted	> Identify important natural areas and habitats > Advise municipalities on implementing protective regulations	Environmental Program Manager, Planning Program Manager, Regional Planners	Municipalities, ANR	Ongoing	$		
9.10.15	New building construction on visually prominent shorelines, hillsides, mountains, and ridgelines should include provisions for siting and screening structures to protect important scenic values. Municipalities are encouraged to adopt appropriate ordinances to ensure that locally significant scenic resources are protected.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> # of siting and screening ordinances adopted	> Identify important scenic sites throughout the region > Recommend draft screening ordinances to relevant municipalities	Environmental Program Manager, Planning Program Manager, Regional Planners	Municipalities	Ongoing	$		
9.10.16	Avoid wind generation and telecommunication facilities on mountains and ridgelines when construction would destroy critical natural resources or degrade an identified essential viewshed.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> # of siting and screening ordinances adopted	> Identify important scenic sites throughout the region > Recommend draft screening ordinances to relevant municipalities	Environmental Program Manager, Planning Program Manager, Regional Planners	Municipalities	Ongoing	$		Utilities

NATURAL RESOURCES									
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
9.10.17	Prioritize the maintenance and improvement of public access to important outdoor recreational areas and sites in rural areas throughout the region. Redevelopment of waterfront properties in developed areas for residential, commercial, or recreational use is appropriate and must consider incorporating flood safety measures as appropriate.	Enhanced recreational opportunities for residents and visitors that provide public health, quality of life, and economic benefits; Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> # of public access sites > distribution of public access sites throughout the region	> Identify important recreational areas throughout the region > Ensure municipalities have adequate flood hazard regulations in place > Recommend best practices around maintenance and improvement of public spaces	Environmental Program Manager, Planning Program Manager, Regional Planners	Municipalities, FPR, landowners, developers	Ongoing	$ / $$		
9.10.18	Encourage owners of valuable agricultural and forest lands to consider participating in the Vermont Use Value Appraisal Program.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> # of owners participating in UVA	> Identify sites eligible for UVA > Share resources on benefits of participating in UVA	Environmental Program Manager, Planning Program Manager, Regional Planners	Landowners, municipalities, VDT, AFM, FPR	Ongoing	$		
9.10.19	Continue to participate in cooperative planning for regional natural resources.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> connections facilitated throughout the region	> Facilitate conversations with conservation groups throughout the region	Environmental Program Manager, Planning Program Manager, Regional Planners	Conservation groups, VLT, VHCB, BCCD	Ongoing	$		
9.10.20	Encourage the acquisition of important forest lands by the U. S. Forest Service, following consultation with affected local governments, as a valuable way to maintain and enhance resource values and opportunities.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> acreage of important lands acquired by the U.S. Forest Service	> Identify important forest lands adjacent to US Forest Service lands > Connect with relevant municipalities to assess interest in potential acquisition by US Forest Service	Environmental Program Manager, Planning Program Manager, Regional Planners	USFS, ANR, municipalities	Ongoing	$		Land Use
9.10.21	Promote the acquisition of valuable resource lands by local and state government, land trusts, or private conservation organizations, as an appropriate and effective conservation strategy.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> acreage of valuable lands acquired by conservation organizations	> Identify valuable resource lands with community interest in protection > Connect with relevant municipalities to assess interest in potential protection	Environmental Program Manager, Planning Program Manager, Regional Planners	VLT, ANR, municipalities, community organizations	Ongoing	$ / $$		Land Use

AARP = American Association of Retired Persons, AFM = Vermont Agency of Agriculture, Food & Markets, ANR = Vermont Agency of Natural Resources, AOT = Vermont Agency of Transportation, DPS = Vermont Department of Public Service, EPA – U.S. Environmental Protection Agency, FPR -= Vermont Department of Forests, Parks, and Recreation, HMGP = Hazard Mitigation Grant Program, USFS = U.S. Forest Service, VDT = Vermont Department of Taxes, VHCB = Vermont Housing & Conservation Board, VLT = Vermont Land Trust

CLIMATE RESILIENCE										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
10.6.1	Work cooperatively with municipalities and the Vermont Agency of Natural Resources to complete and maintain flood and fluvial erosion hazard maps and to identify specific areas of concern that should be targeted for mitigation actions.	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> Flood and fluvial erosion hazard maps for all municipalities	> Review current flood and fluvial erosion hazard maps for accuracy > Identify which municipalities imminently require updated maps	Emergency Management Program Manager, Environmental Program Manager, Planning Program Manager, Regional Planners	ANR, VEM, municipalities, FEMA	Ongoing	$	VEM, Flood-Resilient Communities Fund	
10.6.2	Work cooperatively with municipalities, state and regional agencies, and conservation and watershed organizations to maintain and enhance the ecological integrity of rivers, streams, wetlands, and upland forests.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> % of water bodies with excellent ecological integrity	> Identify critical resources > Develop plans to maintain or mitigate ecological issues	Emergency Management Program Manager, Environmental Program Manager, Planning Program Manager, Regional Planners	ANR, BCCD, Trout Unlimited; municipalities, VEM	Ongoing	$	BRIC	Natural Resources
10.6.3	Facilitate acquisition by public entities or conservation organizations of critical buffers and land within erosion hazard zones, especially those identified in hazard mitigation and river corridor plans.	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> # critical lands and buffers protected or planned for protection	> Review hazard mitigation and river corridor plans to identify critical buffers and land within erosion hazard zones > Initiate contact with organizations/municipalities about acquisition	Emergency Management Program Manager, Environmental Program Manager, Planning Program Manager, Regional Planners	ANR, BCCD, The Conservation Fund, VLT, VHCB, municipalities	Ongoing	$	HMGP, BRIC, VEM, Flood-Resilient Communities Fund	Natural Resources
10.6.4	Assist municipalities to maintain up-to-date regulations to limit and control development in flood hazard areas and river corridors.	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> % of municipalities with up-to-date flood hazard regulations	> Review current municipal flood hazard regulations and identify and prioritize for updates	Emergency Management Program Manager, Environmental Program Manager, Planning Program Manager, Regional Planners	ANR, ACCD, municipalities, VEM, FEMA	Ongoing	$$	BMG, ERAF	Natural Resources
10.6.5	Advocate for municipalities to adopt river corridor standards or to require establishment of undisturbed buffers of natural vegetation between rivers, streams, and other waterbodies to maintain water quality and to attenuate overland flow.	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> % of municipalities with river corridor standards	> Review current municipal river corridor standards and identify and prioritize for updates/development	Emergency Management Program Manager, Environmental Program Manager, Planning Program Manager, Regional Planners	ANR; ACCD; municipalities, VEM, FEMA	Ongoing	$$	EMPG	Natural Resources
10.6.6	Advocate that municipalities adopt the most recent Orange Book standards for municipal roads and bridges.	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> % of municipalities with adopted Orange Book standards	> Outreach to municipalities who have not adopted Orange Book standards	Emergency Management Program Manager, Environmental Program Manager, Senior Transportation Planner, Regional Planners	Municipalities, AOT, VEM	Short-term	$	EMPG, AOT	Transportation

CLIMATE RESILIENCE										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
10.6.7	Facilitate reconstruction or replacement of existing local and state bridges and culverts that would impede flow during flooding events as part of regular scheduled maintenance or through special hazard mitigation initiatives	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> # bridges and culverts have been repaired	> Inventory regional bridges and culverts > Identify and prioritize for repair	Emergency Management Program Manager, Environmental Program Manager, Senior Transportation Planner, Regional Planners	AOT, municipalities, VEM	Medium-term	$$/$$$	Grants in Aid program	Transportation
10.6.8	Provide education and outreach to municipalities and property owners within flood zones to encourage flood-proofing or buy-outs of structures subject to repeated flooding and eligible for funding under the FEMA hazard mitigation grant program.	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> % of at-risk municipalities that have been contacted and informed of available resources	> Identify and contact at-risk municipalities and property owners	Emergency Management Program Manager, Environmental Program Manager, Planning Program Manager, Regional Planners	Municipalities, landowners, ANR, VEM, FEMA	Short-term	$	FEMA, VEM, Flood-Resilient Communities Fund	
10.6.9	Recommend municipalities participate in FEMA's Community Rating System program and assist municipalities to implement standards that will lead to rate reductions in flood insurance premiums for residents and businesses.	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> % of municipalities that have opted into FEMA's Community Rating System > Reduction of flood insurance premiums	> Identify and contact at-risk municipalities	Emergency Management Program Manager, Environmental Program Manager, Planning Program Manager, Regional Planners	Municipalities, VEM, FEMA	Short-term	$	VEM	
10.6.10	Assist municipalities to require owners of property in flood hazard zones to secure propane tanks, firewood, boats, and other items that could float away in a flood, thereby creating hazards for people, property, and infrastructure downstream.	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> # of municipalities contacted with relevant information	> Provide information and resources to municipalities to share with property owners	Emergency Management Program Manager, Environmental Program Manager, Regional Planners	Municipalities, VEM, FEMA	Short-term	$	BMG, VEM	
10.6.11	Track state heat and drought warning systems and work cooperatively with municipalities to implement mitigating measures that are within municipal control	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> Municipalities with plans in place for extreme heat/drought	> Contact municipalities and provide information about extreme heat/drought mitigation measures > Work with municipalities to identify measures that can be implemented	Emergency Management Program Manager, Environmental Program Manager, Regional Planners, Agency of Human Services	Municipalities; VEM; VDH	Short-term	$$	VEM, EMPG, DHS	
10.6.12	Study urban tree canopy in the region's downtowns and villages centers, especially with an eye toward equity. Based on study results, pursue tree planting in downtown and village areas with canopy gaps that contribute to inequitable heat island effect.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> # of tree plantings in high-priority areas	> Gather initial data on tree coverage in densely settled areas > Identify areas for additional tree canopy	Emergency Management Program Manager, Environmental Program Manager, Regional Planners	Municipalities; ANR; BCCD	Short-term	$$	Vermont Urban & Community Forestry Program	

CLIMATE RESILIENCE										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
10.6.13	Assist municipalities to provide adequate shade coverage and water sources at outdoor public facilities such as parks, playgrounds, and public transit stops.	Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> # of municipalities with identified public facilities in need of additional shade coverage and water sources and implemented those measures	> Contact municipalities with significant outdoor public facilities and assist with identifying facilities with inadequate shade coverage and water sources	Emergency Management Program Manager, Environmental Program Manager, Regional Planners	Municipalities, VEM	Medium-term	$$	Vermont Urban & Community Forestry Program	
10.6.14	Assist municipalities to meet requirements of the Emergency Relief and Assistance Fund (ERAF).	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> # of municipalities participating in ERAF	> Identify and contact municipalities that do not meet ERAF requirement	Emergency Management Program Manager, Environmental Program Manager, Planning Program Manager, Regional Planners	Municipalities, VEM	Short-term	$	VEM	
10.6.15	Assist municipalities to complete grant applications under the Hazard Mitigation Funding Program and will respond to municipal RFPs to develop HMPs.	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> # of municipalities that received funding and developed HMPs	> Share information about hazard mitigation funding with municipalities	Emergency Management Program Manager, Environmental Program Manager	Municipalities, VEM, FEMA	Short-term	$	VEM, EMPG, FEMA	
10.6.16	Facilitate municipalities to maintain and submit Local Emergency Management Plans (LEMP)	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> % of municipalities with LEMPs	> Identify municipalities that have not submitted LEMPs and assist them with development	Emergency Management Program Manager, Environmental Program Manager	Municipalities, VEM	Year 1	$	EMPG	
10.6.17	Facilitate participation by municipal representatives at all Regional Emergency Management Committee (REMC) meetings.	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> # of municipalities regularly attending REMC meetings	> Share information about upcoming REMC meetings with municipalities	Emergency Management Program Manager, Environmental Program Manager	Municipalities, VEM	Ongoing	$	EMPG	
10.6.18	Encourage municipal leaders to assess their community's risk by reviewing the Community Report section on the Flood Ready website.	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> # of municipalities that have reviewed the Flood Ready website	> Share information about the Flood Ready website with municipalities	Emergency Management Program Manager, Environmental Program Manager	Municipalities, VEM	Year 1	$	VEM, EMPG	

CLIMATE RESILIENCE										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
10.6.19	Facilitate attendance by municipal leaders at Incident Command System (ICS) trainings, Emergency Management Director (EMD) trainings, National Incident Management System (NIMS) trainings, and other necessary trainings listed on the Vermont Learning Management System.	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> # of municipal officials that have participated in trainings	> Share information about the trainings available on the VT Learning Management System with municipalities	Emergency Management Program Manager, Environmental Program Manager	Municipalities, VEM, EMDs	Ongoing	$	VEM, EMPG	
10.6.20	Assist municipal leaders to encourage community members to sign up for Vermont Alert to receive emergency alerts by text, email, or phone call.	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> # of people who have signed up for VT Alert	> Share information with municipalities about VT Alert which can be passed on to residents	Emergency Management Program Manager, Environmental Program Manager	Municipalities, community leaders, VEM	Ongoing	$	VEM, EMPG	
10.6.21	Assist municipalities to provide emergency information on municipal websites, such as shelter information, weather alerts, and how to make an emergency kit.	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> # of municipalities have updated their websites with emergency information	> Share important information for municipalities to include on their websites	Emergency Management Program Manager, Environmental Program Manager	Municipalities, community leaders, VEM	Ongoing	$	VEM, EMPG	
10.6.22	Work to provide additional support to Economically Disadvantaged and Rural Communities (EDRCs)	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> EDRCs have been identified and prioritized for support	> Identify EDRCs in the region and ways to support them	Emergency Management Program Manager, Environmental Program Manager, Regional Planners	Municipalities, VEM	Ongoing	$$	VEM, EMPG, EPA	

ANR = Vermont Agency of Natural Resources, BCCD = Bennington County Conservation District, BMG = Bylaw Modernization Grant, BRIC = Building Resilient Infrastructure and Communities, DHS = Vermont Department of Human Resources, EMDs = Emergency Management Directors, EMPG = Emergency Management Performance Grant, EPA = U.S. Environmental Protection Agency, ERAF = Emergency Relief and Assistance Fund, FEMA = Federal Emergency Management Agency, HMGP = Hazard Mitigation Grant Program, VDH = Vermont Department of Health, VEM = Vermont Emergency Management, VHCB = Vermont Housing and Conservation Board, VLT = Vermont Land Trust

TRANSPORTATION										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
11.8.1	Create a robust electric vehicle charging network to promote the transition to electric vehicles.	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> # of EV chargers distributed throughout the region	> Identify and prioritize locations for new EVSE	Energy Program Manager, Senior Transportation Planner, Regional Planners	Municipalities, ACCD, AOT, GMP, Efficiency Vermont	Short-term	$$	AOT, EVSE Grant	Energy
11.8.2	Improve public transportation between key origins and destinations so that it attracts “choice riders” (riders who choose to take transit over driving personal vehicles).	A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> # of new stops and route > % increase in transit ridership	> Speak with community members about their transit needs and share information with Green Mountain Express	Senior Transportation Planner, Regional Planners	Municipalities, Green Mountain Express, AOT	Short-term	$$	TAP	Energy
11.8.3	Create safe and inviting bicycle and pedestrian networks, particularly in downtowns and village centers, to boost the trip mode share of walking and biking.	A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> # of miles of walking and biking paths created	> Work with municipalities and community members to identify locations for new bike/ped infrastructure	Senior Transportation Planner, Regional Planners	Municipalities, AOT, Bike Hub, Local Motion, student groups, community members	Medium-term	$$$	BPG, TAP, Complete Streets funding, AIG, AARP, VCF, VCRDs	Land Use, Housing, Natural Resources, Energy
11.8.4	Design roads and streets so that they are “self-enforcing” and do not invite drivers to exceed the speed limit.	A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> % reduction in speeding and vehicular crashes	> Perform traffic studies at areas that have been identified as having excessive high-speed traffic > Identify traffic calming measures	Senior Transportation Planner, Regional Planners	Municipalities, AOT, Local Motion, student groups, community members	Medium-term	$$	HSIP, BCP, AIG	
11.8.5	Support extension and improvements to local and regional public transportation services.	A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> # of new routes created > % increase in usage	> Identify and prioritize potential new regional public transit connections	Senior Transportation Planner, Regional Planners	Municipalities, AOT, Green Mountain Express, student groups, community members	Medium-term	$$	TAP	Energy

TRANSPORTATION									
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
11.8.6	Support efforts to complete passenger rail service along the entire western corridor between Albany-Rensselaer, Bennington, Rutland, and Burlington.	A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> Expanded rail service along the Western corridor	> Connect with stakeholders > Conduct feasibility studies for rail expansion	Senior Transportation Planner, Regional Planners	Municipalities, AOT, Amtrak	Long-term	$$$		
11.8.7	Encourage and assist with the development and maintenance of safe and convenient pedestrian routes in downtowns, village centers, hamlets, neighborhoods, and all areas of concentrated development. Traffic calming techniques should be used in these areas to reduce vehicle speeds and enhance safety.	A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> # of miles of sidewalks and bike lanes created > # of traffic calming measures implemented	> Identify areas for bike/ped improvements within downtown and village center > Assist municipalities with procuring implementation funding	Senior Transportation Planner, Regional Planners	Municipalities, AOT, students, community groups	Medium-term	$$	BPG, TAP, Complete Streets funding, BCP, AIG, AARP, VCF, VCRD	Land Use, Energy
AARP = American Association of Retired Persons, ACCD = Vermont Agency of Commerce and Community Development, AIG = Vermont Arts Council Animating Infrastructure Grant, AOT = Vermont Agency of Transportation, BCP = AOT Better Connections Program, BPG = AOT Bicycle and Pedestrian Program Grant, EVSE = Electric Vehicle Supply Equipment, GMP = Green Mountain Power, HSIP = AOT Highway Safety Improvement Program, TAP = AOT Transportation Alternatives Program, VCF = Vermont Community Foundation, VCRD = Vermont Council on Rural Development									

UTILITIES, FACILITIES, AND SERVICES										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
12.10.1	Assist towns and villages to develop capital budgets and programs.	Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region.	> # of municipalities that have developed capital budgets that plan for smart growth of facilities and services	> Contact municipalities and offer to provide technical assistance with capital budgeting	Community & Economic Development Program Manager, Planning Program Manager, Regional Planners	Municipalities	Medium-term	$		
12.10.2	Work with local governments to assess water and sewer infrastructure needs required to support planned development in these areas.	Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region.	> Water and sewer infrastructure needs identified > Expansion in targeted areas	> Conduct water and wastewater feasibility studies in areas planned for growth	Planning Program Manager, Regional Planners	Municipalities, ANR	Medium-term	$$		Land Use, Housing
12.10.3	Work with towns in the region to develop a comprehensive solid waste plan that will implement the goals of the Vermont Materials Management Plan.	Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region.	> Comprehensive plan developed and implemented across municipalities	> Begin work on plan in consult with municipalities	Solid Waste Program Manager	BCSWA, Municipalities, DEC	Medium-term	$		
12.10.4	Support the establishment of environmentally and economically sound renewable energy generation facilities and implementation of smart grid technology.	Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region; Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> % of local energy needs met with renewable energy generation > % decrease in CO2	> Work with municipalities to identify preferred sites and develop policies for renewable energy development	Energy Program Manager, Planning Program Manager, Regional Planners	Municipalities, DPS, Energy Committees, advocacy groups	Medium-term	$		Energy
12.10.5	Facilitate local and state cooperative efforts to aggressively expand cellular voice and data communication services to all parts of the region. Siting of new telecommunication towers should give primary consideration to concerns identified in municipal and regional plans.	Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region.	> # of new cell towers and telecommunications infrastructure responsibly developed in the region	> Work with municipalities to identify preferred sites and develop policies for telecommunications infrastructure	Planning Program Manager, Regional Planners	Municipalities, SOVT CUD	Medium-term	$		
12.10.6	Cooperate with the VDH, SVMC, and health care providers to implement the Vermont Blueprint for Health and support innovative service delivery and financing systems to advance this goal. Ensure that transportation infrastructure is planned to promote and facilitate active healthy lifestyles.	Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region.	> Participation in the implementation of Blueprint for Health > New bike/ped and public transit routes developed, esp. routes that connect to healthcare facilities	> Engage community members on barriers to accessing health care and work with health care providers to address them	Planning Program Manager, Regional Planners	Municipalities, VDH, SVMC, BVHC, MMC	Medium-term	$$		
12.10.7	Help towns and villages identify recreational needs and opportunities, develop new facilities as appropriate, and work to minimize barriers to access to those facilities.	Enhanced recreational opportunities for residents and visitors that provide public health, quality of life, and economic benefits; Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region.	> # of new widely-accessible recreational facilities developed	> Work with municipalities to identify and prioritize locations for new recreational facilities/ improvements to existing facilities > Assist with pursuing grant funding	Planning Program Manager, Regional Planners	Municipalities, schools	Medium-term	$$	USDA Community Facilities Program, NFC	Education

UTILITIES, FACILITIES, AND SERVICES										
#	**Policy**	**Goals (See 2.2)**	**Measures of Progress**	**Actions**	**BCRC Lead**	**Potential Partners**	**Time Frame**	**Level of Funding Required**	**Potential Funding Sources**	**Also See**
12.10.8	Assist in the preparation of local emergency management plans and hazard mitigation plans, play an active role on the Regional Emergency Management Committee, and serve as a liaison between municipalities and state agencies - providing information and damage reports during emergencies.	Resiliency through planning and regulation that limits and controls development in flood-prone areas, mitigates extreme weather conditions, prepares for community-led emergency response, and bolsters social cohesion.	> # of local emergency management plans and hazard mitigation plans developed > REMC meetings held on a consistent basis	> Continue to provide information to municipalities about REMC meetings, hazard mitigation grant opportunities and emergency resources	Emergency Management Program Manager	Municipalities; VEM	Short-term	$	VEM	Climate Resilience
12.10.9	Assist municipalities to identify vacant lots, fields, and properties that could be used for community gardens, farmers markets, or recreational activities for local residents.	Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region; Enhanced recreational opportunities for residents and visitors that provide public health, quality of life, and economic benefits.	> # of properties reused for community purposes	> Work with municipalities to identify underutilized properties and identify potential uses	Planning Program Manager, Community and Economic Development Program Manager, Regional Planners	Municipalities, landowners, community groups	Short-term	$		Land Use, Natural Resources

BCSWA = Bennington County Solid Waste Alliance, BVHC = Battenkill Valley Health Center, DEC = Vermont Department of Environmental Conservation, DPS = Vermont Department of Public Service, MMC = Manchester Medical Clinic, NFC = Northern Forest Center, SVMC = Southwestern Medical Center, USDA = U.S. Department of Agriculture, VDH = Vermont Department of Health, VEM = Vermont Emergency Management

ENERGY										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
13.6.1	Empower municipal energy committees to engage with residents about opportunities to reduce energy burden and switch to affordable renewable energy sources. Collaborate and partner with organizations to help meet Vermont energy and climate goals.	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> Regular meetings with municipal energy committees and local stakeholders > Attendance at statewide energy stakeholder meetings	> Share information with municipal energy committees > Identify other stakeholders to engage with	Energy Program Manager	Municipalities, Efficiency VT, VECAN, schools and local businesses	Ongoing	$		
13.6.2	Support a wide variety of renewable energy generation types, including, but not limited to, sustainable uses of biomass for heating, passive solar building design, biodigesters for electricity generation, photovoltaic solar, agrivoltaics, wind turbines, and optimizing the energy potential for existing hydro-electric dams in the region.	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> # of municipal enhanced energy plans that support a variety of renewable energy resources > # of renewable energy generators developed in the region	> Work with municipalities to update or develop enhanced energy plans that identify preferred sites for renewable energy development	Energy Program Manager, Planning Program Manager, Regional Planners	Municipalities, local energy companies	Short-term	$$	MPG, NFC	
13.6.3	Raise awareness about the importance of weatherization, non-fossil fuel-based heating systems, and EV charging.	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> # of landlords, developers, and business owners engaged	> Develop a list of regional landlords, developers and business owners and list of resources to share with them	Energy Program Manager	Municipalities, property owners, developers, businesses, NWWVT	Short-term	$		
13.6.4	Support policy changes to achieve the state of Vermont's goals related to the Comprehensive Energy Plan, Climate Action Plan, and Environmental Justice Law.	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> # of policies supported	> Monitor proposed state legislation and provide comments if appropriate > Monitor the development of local regulations and provide input if appropriate	Energy Program Manager, Planning Program Manager, Regional Planners		Ongoing	$		
13.6.5	Promote programs that help reduce energy burden.	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> Expansion of programs that reduce energy burden in the region > % reduction in energy burden	> Identify state and local programs that can reduce energy burden > Share resources and information with municipalities and residents	Energy Program Manager	Municipalities, BROC, Efficiency VT, NWWVT	Ongoing	$		Housing
13.6.6	Host and facilitate building science and standards training and education opportunities for local officials, zoning administrators, and relevant workforce development groups. Encourage communities with zoning to require Certificates of Occupancy. Encourage the local adoption of "stretch energy codes."	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources; Outstanding educational and vocational training services that meet the needs of residents and area businesses.	> # of local regulations that have been updated to promote energy efficiency > # of trainings for local officials	> Update existing list of "energy smart bylaw recommendations" and share with municipalities > Organize trainings for zoning administrators and planning commissions	Energy Program Manager, Community and Economic Development Program Manager, Planning Program Manager	Municipalities	Short-term	$		Education and Childcare, Economic Development, Land Use
13.6.7	Review local zoning bylaws and offer technical assistance to development review boards when evaluating the energy, climate, and health implications of site plans for proposed developments.	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> # of municipalities receiving technical assistance	> Contact municipalities and inform them of technical assistance availability	Energy Program Manager, Planning Program Manager, Regional Planners	Municipalities	Ongoing	$		Land Use

ENERGY										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
13.6.8	Work with housing and energy efficiency organizations to promote and improve the regional supply of energy efficient housing.	A supply of housing sufficient to meet the needs of a diversity of social and income groups available in all communities in the region; A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> Increase in # of energy efficiency housing units in the region	> Contact housing developers and share information about energy efficiency buildings > Provide technical assistance during the development of major housing projects	Energy Program Manager, Planning Program Manager, Community & Economic Development Program Manager	Municipalities, Shires Housing, BHA, private developers	Ongoing	$		Housing
13.6.9	Work with Heat Squad, BROC, and other weatherization programs to increase programmatic offerings in the Bennington region.	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> % increase in weatherization and efficiency projects in the region	> Meet with weatherization agencies to identify ways to increase uptake in the region > Promote weatherization programs to residents and businesses	Energy Program Manager	Municipalities, Heat Squad, BROC, Efficiency VT	Medium-term	$		Housing
13.6.10	Promote and encourage energy audits of residential and commercial buildings.	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> # of energy audits conducted in the region > % increase	> Share information about energy audits and contractors with municipalities, residents and businesses	Energy Program Manager	Municipalities, Heat Squad, BROC, energy audit firms	Ongoing	$		Housing
13.6.11	Identify and support weatherization workforce training opportunities in the region.	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources; Outstanding educational and vocational training services that meet the needs of residents and area businesses.	> Increase in workforce > # of regional trainings supported	> Work with Efficiency VT workforce manager and BCRC Workforce & Ed committee to identify training needs and opportunities	Energy Program Manager, Community and Economic Development Program Manager	Municipalities, Efficiency VT, Resource VT, Southwest Tech	Medium-term	$		Education and Childcare, Economic Development
13.6.12	Promote incentives offered by Efficiency VT and Green Mountain Power, especially incentives for switching to clean heating technologies such as heat pumps.	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> % increase in incentives received in the region > # of new clean heating technologies installed	> Collect information about incentives and share with residents and businesses	Energy Program Manager	Municipalities, GMP, Efficiency VT	Ongoing	$		
13.6.13	Support the use of geothermal heating and cooling systems for new residential and commercial construction.	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> # of buildings heated and cooled with geothermal energy > Reduction of GHG emission	> Develop a list of sites where geothermal energy would be appropriate, share with municipalities and businesses > Share information about geothermal energy with residents	Energy Program Manager	Municipalities, VT Community Thermal Networks	Medium-term	$		
13.6.14	Expand biomass district heating and combined heat and power systems throughout the region.	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> # of buildings heated with biomass/CHP > Reduction of GHG emission	> Update and expand existing list of potential sites for biomass/CHP > Share with municipalities and businesses	Energy Program Manager	Municipalities	Medium-term	$	NFC	

ENERGY										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
13.6.15	Work with the owners of buildings and facilities that serve critical community functions to improve the efficiency and resiliency of these locations.	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> # of community facilities that have adopted energy efficiency/resiliency measures	> Develop list of community facilities and contact operators with information about how to improve building efficiency and resiliency	Energy Program Manager, Community and Economic Development Program Manager	Municipalities	Short-term	$	VEM	
13.6.16	Support redevelopment of town and village centers by assisting with the creation of plans for new mixed-use development, conducting environmental assessments, and by facilitating coordination among entities that have a role in property development.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside.	> # of town and village center plans developed > Increase in mixed-use development	> Identify priority areas for infill and mixed-use development in town and village centers	Planning Program Manager, Environmental Program Manager, Regional Planners	Municipalities, ACCD	Short-term	$$	MPG	Land Use
13.6.17	Work with local planning commissions to amend land use regulations and plan infrastructure improvements that support planned mixed-use centers.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside.	> # of updated land use regulations and infrastructure improvement plans developed	> Review municipal land use regulations and prioritize for updates > Pursue grant funding for bylaw updates	Planning Program Manager, Regional Planners	Municipalities, ACCD	Medium-term	$$	BMG; Small Grants for Smart Growth	Land Use
13.6.18	Help municipalities apply for state designation programs that support compact development.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside.	> # of designations in the region	> Identify municipalities that are good candidates for the designation program and make initial contact	Planning Program Manager, Regional Planners	Municipalities, DHCD	Short-term	$	ACCD	Land Use
13.6.19	In village centers where the infrastructure needed to support the desired mix and density of development is not available, support technical assistance projects in cooperation with the ACCD and the DEC that will lead to expanded water supply and wastewater disposal options.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside; Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region.	> # of municipalities that receive technical assistance > Expansion of regional water and wastewater infrastructure	> Identify and prioritize areas for water and wastewater expansion > Assist municipalities with pursuing funding	Planning Program Manager, Environmental Program Manager, Regional Planners	Municipalities, ACCD, DEC	Medium-term	$$	DEC	Land Use, Utilities
13.6.20	Encourage local plans and regulations to promote land conservation and maintenance of the working landscape over low-density residential development in rural areas.	Planned development that reinforces the historic settlement pattern of well-defined urban and village centers surrounded by rural countryside.	> # of municipal plans and regulations that support conservation and working lands	> Work with municipalities to update municipal plans and land use regulations	Planning Program Manager, Regional Planners	Municipalities	Medium-term	$$	MPG	Land Use, Natural Resources
13.6.21	Follow the 2023 Vermont Transportation Equity Framework to help decision makers plan for and prioritize projects, ensure accurate representation in decision making, and enhance the equitable delivery of services. Continually assess transportation access and barriers in the region.	A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> # of transportation projects identified that enhance equity	> Review the regional priority list of transportation projects using the Transportation Equity Framework and make adjustments as necessary	Senior Transportation Planner, Regional Planners	Municipalities, Green Mountain Express, AOT	Ongoing	$		Transportation
13.6.22	Implement the strategies and priorities identified in the Vermont Health Equity Planning Toolkit that are relevant to the Bennington region.	A vibrant, welcoming, and accessible community where residents feel a sense of belonging and participate in their governance.	> # of toolkit priorities implemented in the region	> Share the toolkit with municipalities, regional committees and citizen groups and prioritize actions for the Bennington region	Planning Program Manager, Regional Planners	Municipalities	Medium-term	$		

ENERGY										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
13.6.23	Work with municipalities to update municipal road standards (for maintenance and new construction) to reflect Complete Streets principles.	Safe, convenient, and efficient transportation system with well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> # of road standards updates > Increase in # of complete streets	> Share Complete Streets principles with municipalities > Update road standards and regulations as needed	Senior Transportation Planner, Regional Planners	Municipalities, AOT	Medium-term	$	Complete Streets funding	Transportation
13.6.24	Ensure that site plans include adequate bike and pedestrian infrastructure and safety measures through local regulations and participation in the Act 250 hearing process.	A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> # of site plans that include bike/ped provisions	> Monitor new developments and pending Act 250 cases and participate when appropriate	Senior Transportation Planner, Planning Program Manager, Regional Planners	Municipalities, developers, ANR	Ongoing	$	BMG	Land Use, Transportation
13.6.25	Assist municipalities with scoping of future bike and pedestrian facilities to improve safety, accessibility, efficiency, and continuity of the system.	A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> # of projects identified > # of scoping studies completed	> Work with municipalities to identify project and develop scoping studies	Senior Transportation Planner, Planning Program Manager, Regional Planners	Municipalities	Medium-term	$$	TAP, BPG	Transportation
13.6.26	Help municipalities use the outcomes of the scoping studies to apply for various AOT implementation grants.	A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> # of grant application completed > # of awards	> Help municipalities identify and apply for state and federal grants	Senior Transportation Planner, Regional Planners	Municipalities	Medium-term	$$	AOT	Transportation
13.6.27	Promote the use of the region's existing bike and pedestrian infrastructure and support the efforts of local groups maintaining them.	A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> % increase in usage of bike/ped network > GHG emissions reductions	> Share information about existing bike and walking paths and related resources	Senior Transportation Planner, Regional Planners	Municipalities, Bike Hub	Ongoing	$	BPG	Transportation
13.6.28	Promote and support the Go! Vermont program that links travelers to a variety of transportation resources and mobility options.	A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> Increased use of biking, walking, public transit and carpooling	> Share Go! Vermont informational resources with municipalities, businesses and residents	Senior Transportation Planner, Regional Planners	Municipalities	Ongoing	$		Transportation

ENERGY									
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
13.6.29	Support the continued development and expansion of park-and-ride facilities.	A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> Increase in number of regional park-and-ride facilities > Increased usage	> Work with municipalities and VTrans to identify locations for new park-and-ride facilities > Identify improvements for existing facilities	Senior Transportation Planner, Regional Planners	Municipalities, AOT	Ongoing	$$	AOT	Transportation
13.6.30	Support employer programs to encourage telecommuting, carpooling, vanpooling, walking, and biking for employee commute trips.	A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> Reduction of single passenger vehicle commutes	> Share Go! Vermont resources and telecommuting resources with regional employers	Senior Transportation Planner, Community and Economic Development Program Manager, Regional Planners	Employers	Ongoing	$		Transportation, Economic Development
13.6.31	Cooperate with Green Mountain Express and AOT to identify opportunities for transit improvement and expansion.	A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> % increase in public transit usage > # of new routes added	> Work with Green Mountain Express and the regional mobility committee to identify new transit routes	Senior Transportation Planner, Regional Planners	Municipalities, Green Mountain Express, AOT	Medium-term	$		Transportation
13.6.32	Promote and support rail infrastructure as a cost-effective transportation resource.	A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> Expanded rail service along the Western corridor	> Connect with stakeholders > Conduct feasibility studies for rail expansion	Senior Transportation Planner, Regional Planners	Municipalities, AOT, Amtrak	Long-term	$$$		Transportation
13.6.33	Assist communities with planning for and securing funding for EVSE.	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> # of EV chargers distributed throughout the region	> Identify and prioritize locations for new EVSE > Apply for funding	Energy Program Manager, Senior Transportation Planner, Regional Planners	Municipalities, ACCD, AOT	Short-term	$$	EVSE Grant	Transportation
13.6.34	Educate individuals on the benefits of EVs with an emphasis on gasoline superusers.	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> # of new EV registrations in the region	> Share information about EVs > Host EV ride and drive events	Energy Program Manager	Municipalities, Drive Electric VT	Ongoing	$		Transportation

ENERGY										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
13.6.35	Promote workplace charging to regional businesses.	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources; A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> # of EV chargers distributed throughout the region	> Share EV charging information and funding opportunities with large employers	Senior Transportation Planner, Community and Economic Development Program Manager, Regional Planners	Municipalities, Drive Electric VT	Ongoing	$	EVSE Grant	Transportation, Economic Development
13.6.36	Assist municipalities and businesses with fleet electrification through grant support and technical assistance.	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> # of new EV fleet vehicles	> Identify municipalities and businesses with vehicle fleets and share information about EVs and funding opportunities > Assist with funding applications	Senior Transportation Planner, Community and Economic Development Program Manager, Regional Planners	Municipalities, Drive Electric VT	Ongoing	$	Electrify Your Fleet Program	Transportation
13.6.37	Support the expansion of electric powered buses and vans among the public and private transportation providers serving the region, including school districts	Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources; A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport; Outstanding educational and vocational training services that meet the needs of residents and area businesses.	> # of new electric buses and vans in the region	> Share funding resources and information with school districts and public transit operators	Senior Transportation Planner, Community and Economic Development Program Manager, Regional Planners	Municipalities, school districts, Green Mountain Express	Ongoing	$	EPA Clean Bus Program	Transportation
13.6.38	Provide technical and grant writing assistance to municipalities to plan for multi-modal transportation and better connectivity with alternative transportation modes.	A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> Expanded biking and pedestrian network and public transit routes	> Perform scoping studies > Compile list of grant opportunities and assist municipalities with applications	Senior Transportation Planner, Regional Planners	Municipalities	Ongoing	$$	TAP	Transportation
13.6.39	Provide training to local planning commissions to require infrastructure for alternative transportation in new developments.	A safe, convenient, and efficient transportation system that includes a well-maintained network of roads and bridges and expanded opportunities for walking, bicycling, public transportation, and rail and air transport.	> # of new developments that include bike/ped infrastructure	> Organize training for municipal officials	Senior Transportation Planner, Planning Program Manager, Regional Planners	Municipalities	Short-term	$	MPG, BMG	Land Use, Transportation

ENERGY										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
13.6.40	Support the development and siting of renewable energy, storage, transmission, and distribution resources on state and regionally preferred (and potential) locations, as identified by BCRC's Act 174 Energy Maps.	Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region; Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources; Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> # of municipal enhanced energy plans that support renewable energy development and identify preferred sites	> Work with municipalities to update/develop enhanced energy planning > Participate in the Section 248 process	Energy Program Manager, Planning Program Manager, Regional Planners	Municipalities	Ongoing	$		
13.6.41	Investigate public benefits provided to communities either directly from renewable energy developers or as a condition of a Certificate of Public Good. Assess if the current system is equitable to all municipalities impacted by a renewable generation facility, or if the current system can be improved to provide greater equity to all community members impacted by a renewable energy generation facility.	Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region; Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources; Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> # of renewable energy generation projects with public benefit agreements	> Monitor proposed renewable energy projects in the region and work with municipalities to negotiate public benefit agreements > Advocate for equity considerations via participation on the Section 248 process	Energy Program Manager, Planning Program Manager, Regional Planners	Municipalities	Ongoing	$		
13.6.42	Encourage municipal land use regulations that promote co-development of renewable energy generation with storage and flexible load management strategies.	Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region; Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> # of municipal enhanced energy plans and regulations that encourage co-location of renewable energy and load management	> Work with municipalities to update/develop enhanced energy planning > Participate in the Section 248 process	Energy Program Manager, Planning Program Manager, Regional Planners	Municipalities	Medium-term	$$	BMG	Land Use

ENERGY										
#	Policy	Goals (See 2.2)	Measures of Progress	Actions	BCRC Lead	Potential Partners	Time Frame	Level of Funding Required	Potential Funding Sources	Also See
13.6.43	Support in-place upgrades of existing facilities, including existing renewable energy generation, storage, transmission lines, distribution lines and substations as needed to reliably serve municipalities and the region.	Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region; Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources.	> # of infrastructure improvements	> Work with VELCO and GMP to identify necessary upgrades and align regional and municipal renewable energy targets with infrastructure realities	Energy Program Manager	Municipalities, VELCO, GMP	Ongoing	$		
13.6.44	Encourage agrivoltaics that co-locates solar energy generation with active farming.	Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region; Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources; Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives.	> # of renewable energy generators on agricultural land	> Develop a list of potential agricultural sites for agrivoltaics > Conduct outreach to farmers	Energy Program Manager, Environmental Program Manager	Municipalities, farmers	Ongoing	$		Economic Development
13.6.45	Encourage and support agricultural production of biofuels and oilseed crops and explore ways to broaden access to processing infrastructure.	Public utilities and community facilities and services sufficient to support a growing resident population and the economic needs of the region; Conservation of energy, implementation of efficient technologies, and appropriate utilization of renewable energy resources; Protection of natural, scenic, and historic resources that contribute to the unique character of the region and support environmental, recreational, public health, and economic development objectives; A strong and diverse economy that provides satisfying and rewarding job opportunities while maintaining high social and environmental standards.	> % increase in local biofuel production > # of farms producing biofuels	> Share information with farmers about biofuel production	Energy Program Manager, Environmental Program Manager	Municipalities, farmers	Ongoing	$ / $$	NBRC, NFC	Economic Development

ACCD = Vermont Agency of Commerce and Community Development, AOT = Vermont Agency of Transportation, BHA = Bennington Housing Authority, BMG = Bylaw Modernization Grant, BPG = AOT Bicycle and Pedestrian Program Grant, BROC = Bennington Rutland Community Action, CHP = Combined Heat and Power, DEC = Vermont Department of Environmental Conservation, GHG = Green House Gas, GMP = Green Mountain Power, MPG = Municipal Planning Grant, NFC = Northern Forest Center, NWWVT = NeighborWorks of Western Vermont, TAP = AOT Transportation Alternatives Program, VECAN = Vermont Energy and Climate Network, VELCO = Vermont Electric Power Company