TOWN OF NORWICH
PLANNING COMMISSION REGULAR MEETING
DRAFT Minutes
August 11th, 2026
Tracy Hall and Zoom

Members present: Jaan Laaspere (Chair), Christian Spalding (Vice-Chair), Mary Gorman, Bob Pape (6:40), Vince Crow, Miller Nuttle
Members absent: Jeff Goodrich
Staff: Steven True, Director, Planning & Zoning
Minute Taker: Steven True
Others Present: Amy Stringer, Linda Gray, Mary Albert

1. **Meeting opened at 6:33 PM**

2. **Approve Agenda:** A **MOTION** to approve the agenda was made by Miller and seconded by Gorman. **MOTION** to approve the agenda as amended carries (5-0).

3. **Public Comment or correspondence for items not on the agenda:** none

4. **Chair's report**
   a. STR ordinance publicity – members discussed ways to publicize the new ordinance, with the consensus that the zoning administrator takes a pro-active approach. Jaan will repost the listserv notice with an added 30–60 day compliance deadline to set clear expectations for unregistered hosts. Steven will respond to neighbor complaints by letter, and update the application form to capture the number of times a unit is rented out in a year.
   b. Planning Commission Bylaws - No consensus reached between Jeff Goodrich and Steven after their meeting. All members asked to review both versions (current bylaws on website; proposed model in last month's packet) and come prepared for a full-group discussion at the next meeting.
   c. Village Master Plan update – An RFP issued on August 3rd, and responses are due on the 27th with a goal to bring recommendations to the Selectboard at their September 12th regular meeting.

5. **Land Use Chapter**
   a. Members discussed current issues with the Town Plan, noting that many of the policies were contradictory, and used too much aspirational language. Spalding noted that several plans used overarching goals, policies and actions into which all chapters (energy, housing, infrastructure, etc.) are nested, rather than parallel standalone chapters. Members discussed the best strategy to develop clearly written standards. To facilitate this, Steven will contact Kevin Geiger of TRORC and request that he present examples of award-winning Vermont town plans that

illustrate best-practice structures. Spalding to prepare a comparative table of town plan document structures for the next packet to build consensus on preferred form before drafting begins.

6. **Energy Chapter/Solar Siting update**
    a. Jaan provides a brief background noting that solar siting criteria (prohibited / preferred / possible with mitigation tiers) and associated mapping were deliberately excluded from the energy working group and assigned to a separate subcommittee.
    b. True and Pape update the group on the progress of the ECWG, noting Energy the group is awaiting the Energy Committee & Conservation Commission's feedback on objectives, policies, and actions section of the energy chapter.
    c. Both energy groups (working group + solar siting) to have content in the packet for full PC review at the October meeting.

7. **Minutes from July 14th**
    a. Spading moved, Crow seconds to approve the minutes. No discussion. **MOTION** carries (5-0, Gorman abstains).
8. **Adjourn**
    a. **MOTION** is made by Spalding, seconded by Pape to adjourn. No discussion. **MOTION** carries (6-0). Meeting adjourned at 7:52 PM.

Next Meeting: August 11th at 6:30 PM

Vision for the Future

2021 Town Plan

Woodbury, VT

December 10, 2021

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Prepared by the Woodbury Planning Commission

David Barnowski, Michael Gray, Thomas "Skip" Lindsay - Chair, Jayne Nold-Laurendeau, Michael Sadler, Jim Schweithelm, PhD. – Vice Chair

Anna Lee-Data Analyst

With Assistance from the Central Vermont Regional Planning Commission

Woodbury Selectboard: Paul Cerutti, Michael Gray – Chair, Chris Koteas

Vision for the Future

Woodbury's rural landscape, supporting many diverse natural habitats unique to Vermont, is one of its greatest assets. This provides for working landscapes, outdoor recreation, scenic areas and much more. At the same time, our rural setting presents challenges and opportunities for our town and our connections to the world at large. Those who have chosen to stay or settle in Woodbury have a strong sense of place and community. Together, we have worked to make Woodbury an affordable, safe, and welcoming place to live. Woodbury will continue to strengthen our community and protect our rural setting as we meet challenges, present and future, and develop the opportunities those challenges have given us.

This vision for the future has helped guide the development of the 2021 Woodbury Town Plan. Planning for Woodbury's environmental health, economic development, housing needs, and infrastructure are fundamental responsibilities of the town. This new town plan is intended to serve as a long term guide and basis for local decision making in meeting these responsibilities.

During the course of developing this plan the Woodbury Planning Commission sought public input at various stages during the process including the development of two surveys, Front Porch Forum posts, a virtual Community Values Mapping Workshop, a series of community input meetings and invitations to join regular and special planning commission meetings. To the degree possible attempts to reflect the desires and wishes of local residents and property owners have been integrated into the plan. While the Woodbury Planning Commission is the lead entity responsible for implementing the plan its success ultimately depends on the combined support, involvement and collaboration of Town residents, private property owners, and local officials.

The 2021 Woodbury Town Plan outlines a proposed course of action for protecting forestlands; preserving the quality of the lakes and ponds; attracting and retaining residents and businesses; and maintaining infrastructure. To that end the town plan proposes the following goals and priority actions:

Goals

- Protect and conserve Woodbury's forests, lakes, ponds, and wetlands to maintain and improve ecological functions.
- Strengthen and promote the long-term viability of working lands that are committed to sound management practices and contribute to the local economy.
- Protect and maintain significant scenic areas and views.

- Increase recreational opportunities afforded by Woodbury's natural setting for residents and non-residents.
- Protect and preserve important historic and cultural resources and make information about these resources available.
- Increase the diversity of housing options to meet the needs of a wide range of income levels and preferences.
- Support the viability of local businesses, and increase access to employment, training and educational opportunities in Woodbury by encouraging provision of services.
- Increase the vitality of our village centers, South Woodbury and Woodbury Village, to benefit the existing community and attract new residents.
- Maintain Woodbury's roads to a high standard for safety, efficiency and environmental integrity and ensure bicyclists and pedestrians are accommodated, particularly in the Village Centers and the Route 14 corridor.
- Maintain town-owned facilities and provide for basic public services, which are cost-effective, hazard resilient, and efficient while seeking opportunities to make improvements.
- Increase cell and broadband coverage for social, economic, educational and emergency service needs.
- Increase energy efficiency and energy conservation while supporting the transition to renewable energy sources.

Priority Actions

- Raise awareness and educate property owners and residents about the ecological important of forest blocks and about the State's Shoreline Protection Act.
- Form committees to:
    - Undertake a feasibility study for the establishment of a town beach;
    - Recommend how to expand the local trail systems for all users;
    - Facilitate efforts for the creation of public gathering places and the possible establishment of a store or café.
- Apply for Village Center Designation to make financial and technical assistance resources available to commercial and public buildings in Woodbury Center Village including the school and town hall;
- Continue support of, and maintain a town representative on the regional Consolidated Union District, CV Fiber, or other contractors in the deployment of high-speed broadband connectivity.
- Seek grant funds to implement recommendations of the Woodbury Village Planning Study, specifically to identify water and wastewater options for Woodbury Center Village and to install streetscape recommendations for traffic calming and for bicycle and pedestrian facilities.

About Woodbury & About the Plan

About Woodbury

Located in the Northeast corner of Washington County in Northeastern Vermont, Woodbury is home to approximately 928 year round residents (Census 2020). It is bounded by the Towns of Calais, Elmore, Hardwick and Cabot, and contains approximately 25,122 acres of land. It is known as the "Land of Lakes and Ponds," natural features which attracted some of the town's earliest inhabitants and remain a draw for many current residents and second home owners alike. The town's prosperity grew during the late 1890's with the granite boom. Woodbury gray has been used in the construction on many prominent buildings across the US. Today the historic buildings of South Woodbury Village and Woodbury Center Village are a reminder of a bygone time. The town is characterized by its forested hills and mountains dotted with many lakes and wetlands.

The natural environment and small-town feel are important aspects to Woodbury residents. People most value Woodbury's clean air and water; lakes and ponds; nice people, and its small town character. When surveyed in late 2019/early 2020 respondents indicated they chose to live in Woodbury for similar reasons, primarily citing the welcoming community, natural landscape, affordability compared to surrounding areas, and proximity to family.

Woodbury Loves	**Woodbury Wishes**
Affordability	Preservation of scenic landscapes
Scenic Beauty	Environmental protection of lakes and ponds
Recreation opportunities	A store, coffee shop, restaurant
Sense of community	Agricultural and land-based businesses
Rural and quiet	Home based businesses
Lake life	High Speed internet
Family	Public beach and outdoor recreation
	Community gathering places
	Services for seniors & Child Care Services
	Local businesses providing services and amenities
	Small scale commercial growth in Woodbury and South Woodbury Villages
	Ordinance enforcement
	Local law enforcement and emergency services
	Road maintenance

About the Plan

This plan replaces the 2003 Woodbury Town Plan and takes into account the changes that have happened since the last plan. It establishes a vision along with

a series of goals, objectives and actions for the eight-year life of the plan and is intended to be user-friendly and easily understandable. The Woodbury Planning Commission utilized the Vermont Planning Manual as guide and strived to reflect local conditions and desires while also meeting the State planning goals and municipal plan requirements as identified in Title 24 of the Vermont Statutes Annotated, Chapter 117 (The Vermont Municipal and Regional Planning Act).

Developing a picture for the future and setting clear goals helps communities and individuals connect many smaller actions and measure achievement toward the larger goal. A guiding plan allows decisions to be made by considering the future of the community as a whole. Without it, short-term, shortsighted decisions can erode a community's quality of life, reduce its property values, and lead to higher taxes or wasteful spending.

The town plan is to be used as a:

- ☑ long-term guide: to measure and evaluate public and private initiatives that affect the future physical, social, and economic health of the community.
- ☑ basis for decision-making, community programs, and taxpayer investments to: identify priorities for funding; establish a capital improvement program; and direct other public and private local initiatives, such as farmland protection, housing development, or recreational facilities creation or improvement.
- ☑ action plan that identifies implementation steps and details the programs and projects over the short term and long term to achieve goals and objectives. Well-articulated implementation strategies can help leverage grant funding and other support for those actions.
- ☑ basis for municipal regulations: serves as the foundation for zoning and subdivision regulations and bylaws to protect significant resources, shorelands and flood-hazard areas from development.
- ☑ source of information: valuable source of facts and figures on things like population changes, economic trends, and future housing and infrastructure needs; it also locates and describes important historic and natural resources.
- ☑ source for strategic planning and studies: Few plans can address every issue in sufficient detail. Therefore, municipal plans often recommend further studies to develop policies or strategies to meet specific needs like creating more housing or managing stormwater.
- ☑ tool for coordination: Municipal plans are important in conveying a community's vision for broader initiatives such as the development of inter-municipal, regional, and state agency plans and programs.
- ☑ source for community standards in state regulatory proceedings: Act 250, Vermont's statewide land use law; the Section 248 permitting process for

energy projects; and other state regulatory processes that reference municipal plans.

In addition to the contents of this document the Woodbury Enhanced Energy Plan is included as an attachment and is to be considered as part of this town plan. There are a number of additional documents incorporated by reference which can be found on the Woodbury municipal website. They include:

- Woodbury Town Plan 2021 Data & Map Appendix, December 10, 2021 https://www.woodburyvt.org/wp-content/uploads/2021/12/12102021.2021-Woodbury-Town-Plan-Map_Data_Appendix.pdf
- Woodbury Community Values Mapping Report, prepared by VT Fish & Wildlife Department, March 24, 2021 https://www.woodburyvt.org/wp-content/uploads/2021/03/Woodbury-Community-Values-Mapping-Report.pdf
- Woodbury Local Hazard Mitigation Plan, prepared by the Town of Woodbury, adopted February 4, 2019 https://www.woodburyvt.org/wp-content/uploads/2019/02/Woodbury-VT-LHMP.pdf
- Town Forest Recreation Plan, prepared by SE Group and Arrowwood Environmental, October 15, 2018 https://www.woodburyvt.org/wp-content/uploads/2019/02/Woodbury-Plan-Document_Final.pdf
- Woodbury Community Planning Project – Planning for the Future of Woodbury Village, prepared by LandWorks, December 2015 https://www.woodburyvt.org/wp-content/uploads/2019/09/Village-Plan-Final-Report.pdf

Gathering Public Input

During the course of developing this plan Vermont was operating under a State of Emergency Order due to the global COVID-19 pandemic. From mid-March 2019 through mid-June 2021 the planning commission was enabled to hold public meetings virtually via Zoom online conferencing software; meetings in person and public gatherings were discouraged. During the summer and early fall 2021 in person meetings resumed with some public safety precautions still in place. A Municipal Planning Grant awarded from the Department of Housing and Community Development helped fund a portion of the engagement efforts. The following techniques and strategies were used to engage residents in the process and gather input and feedback on the plan:

We love access to the many lakes, we like living deeper in nature, and in a place where we can afford to have a home plus lots of land. We wanted to raise our children in a small community with accountability to others and a deep sense of belonging.

- Woodbury resident

Electronic and paper announcements and updates: A press release was distributed to local media outlets to announce the project; announcements inviting participation in the survey, feedback on the Vision statement and planning commission agendas were posted on Front Porch Forum (FPF), on the municipal website, and at three public physical locations throughout town. Planning Commission meeting minutes were posted on the municipal website and at the same physical locations. Email distribution lists maintained by the town and by local lake associations were also utilized to communicate announcements, updates and information.

Surveys: Three (3) surveys were developed and distributed to property owners and residents to gather feedback on local values and concerns. Two electronic surveys using the "Survey Monkey" application and a mailed survey to over 700 Woodbury citizens were utilized in this effort. The respondents most valued Woodbury's (1) Clean Air and Water, (2) Lakes and Ponds, (3) Nice People, and (4) Small Town. The survey information was compiled and a "dashboard" was created using the Tableau software program by a Woodbury resident, Anna Lee.

Respondents chose to live in Woodbury for similar reasons, primarily citing the welcoming community, natural landscape, affordability compared to surrounding areas, and proximity to family. One-on-one interviews were also conducted to supplement input gathered from the surveys. Additionally a second-homers survey was distributed to gather targeted feedback from part-time residents to gauge additional preferences, and potential changes in residency due to the effects of COVID-19. This survey garnered 48 responses and highlighted additional desired services and local amenities. While the majority of respondents indicated they do not intend to move to Woodbury fulltime, this should be balanced with local knowledge which indicates the contrary. Results have to be integrated into the plan and can also be viewed on the municipal website.

Residents providing input at a meeting help at the Town Hall on August 28, 2021

Values Mapping Workshop and Community Conversations: In early winter 2021 the Woodbury Planning Commission invited the VT Community Wildlife Program (Department of Fish & Wildlife) to lead a Community Values Mapping event for the Town. In the mapping event, people were asked to identify places in Woodbury they love and what they value about those places. The input from 18 members of the community helped reinforce feedback from the surveys. The results have been integrated into the plan and helped shape the creation of a forest district in the future land use plan. The Report generated from the Community Wildlife Program can be found on the municipal website. The Planning Commission also hosted three community conversation events to share information about the plan and gather feedback on the goals and alternative future land schemes. One meeting was held in person and two held virtually via Zoom. To supplement these events an online platform was developed for people to learn about the plan and provide input on the goals and future land use schemes.

Regular Public Meetings and Statutory Public Hearings: The Planning Commission met regularly to develop, discuss and review all aspects of the plan and adhered to the Open Meeting Law requirements and statutory municipal plan adoption procedures. Meeting agendas and minutes were posted in required timeframes and locations; public notice and hearing requirements were followed and documented. Public hearings were held on October 18, 2021 and November 15, 2021Comments, input, and feedback were considered and documented in Planning Commission minutes; the Planning Commission also prepared the "Woodbury Planning Commission Public Comment Response Summary" which documented all comments provided on the draft town plan and was publically posted and submitted to the Selectboard with the final draft plan.

Compatibility with neighboring towns and the region

According to Vermont Statute, a municipal plan is considered to be “compatible” with the plans of its neighboring towns and the region if it "will not significantly reduce the desired effect" of the same. By virtue of its geography and planning goals, Woodbury's potential for inter-municipal land use conflicts is limited. This Plan vision and current development patterns, do not appear to threaten or obstruct the planning goals of Hardwick, Cabot, Calais or Elmore or those of the Central Vermont Regional Plan. Each of these plans strive to maintain forest areas and rural character in this area.

Draft copies of this Plan were mailed to all neighboring towns, the Central Vermont Regional Planning Commission and the Department of Housing and Community Development as per statutory requirements for review and comment. The Town of Hardwick and the Central Vermont Regional Planning Commission provided written responses indicating no questions or concerns about the draft plan. Woodbury therefore concludes that this Plan is compatible with those of adjoining communities and with the relevant regional plans.

Natural Setting

Natural Features & Ecological Systems

Woodbury is approximately 86% forested, with only about 1.5% of its land area developed. Five percent of Woodbury's land area is cropland, pasture, or open land, and another 2% is formerly open land in the process of reverting to forest. Woodbury contains more lakes and ponds than any other town in Vermont. Surface waters and wetlands comprise over 5% percent of the Town's total area. With about 1,560 feet of topographic relief inside its boundaries, the minimum elevation of just about 920 feet runs along the shores of Woodbury Lake / Sabin Pond, the terrain then climbs to over 2,483 feet on Woodbury Mountain in the northwest corner of Town.

Topography As elevation increases soils are thinner, erosion more extensive, vegetative cover more sparse, and climatic conditions more severe especially above 2,000 feet. Generally, in town slopes are steep; in fact, 4,395 acres (17.5%) of Woodbury's terrain exhibits slopes greater than 25%, with greatest concentrations being found in the Woodbury Range. Steep slopes are often associated with other environmental features such as rock outcrops, shallow soils, bedrock fractures, and groundwater seeps. If disturbed, these areas of high elevation and steep slopes can become unstable and are not suitable for development.

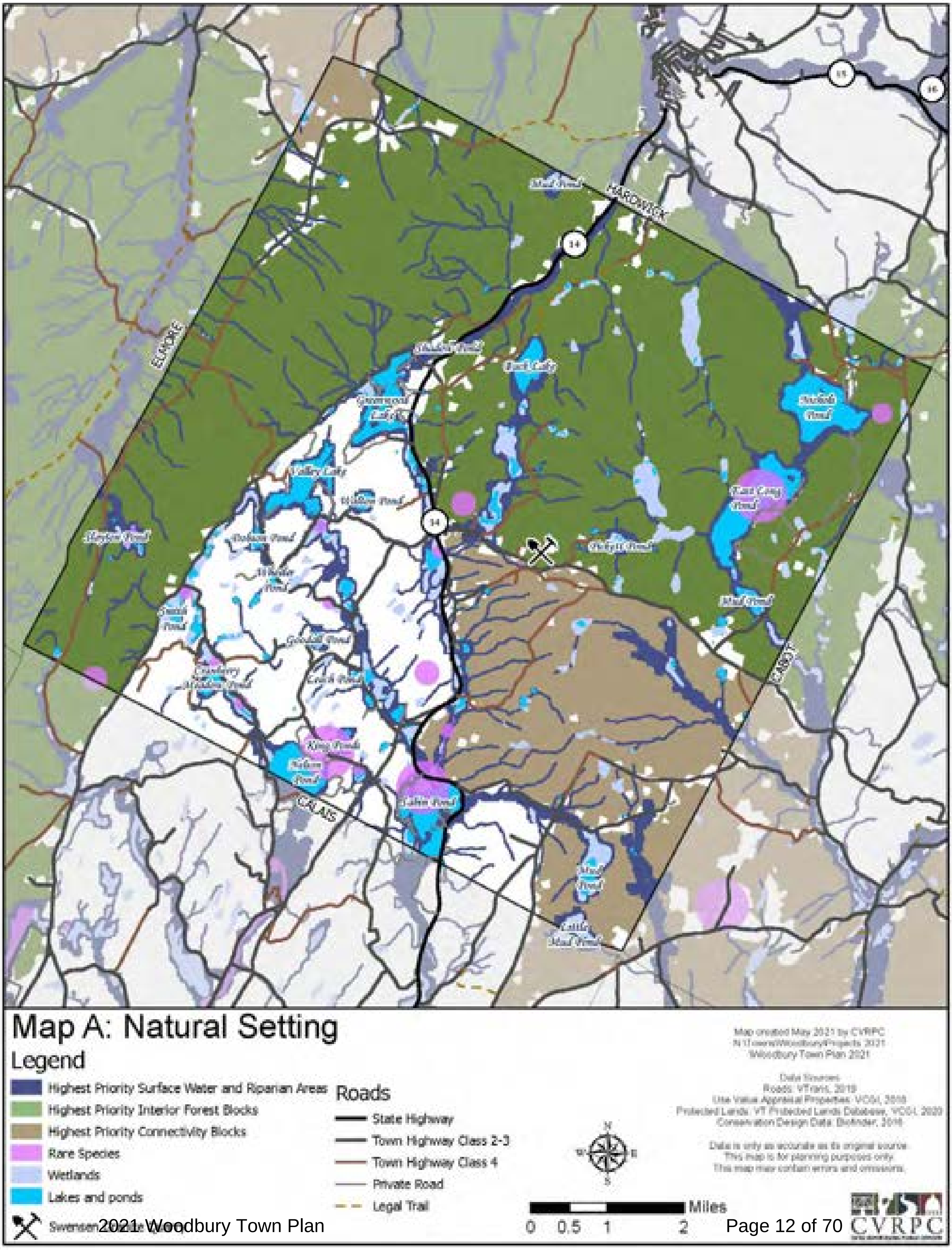
Soils USDA Natural Resources Conservation Service (NRCS) soil survey interprets soil types and evaluates their capability for certain uses. In general, unfavorable soil types for development typically contain excessive slopes, shallow depth to bedrock or hardpan, wet soils, excessively drained soils, unstable soils, and erodible soils. The majority of soils identified in the survey of Woodbury by the NRCS, however, have severe or moderate limitations for septic field absorption due to depth, wetness, rock, slope, slow percolation, flooding, and/or poor filtering.

Watershed The Town is roughly bisected by Route 14 which traverses a north-south valley formed by Cooper Brook to the north, and Kingsbury Branch to the south. Land in the northern and far western portion of town drains into the Lamoille River watershed and the rest of town drains southward into the larger Winooski River watershed. Both watersheds empty into Lake Champlain and for over two decades betterment of water quality has been increasingly important to town residents and State entities alike.

The Vermont Clean Water Act requires the development and adoption of Tactical Basin Plans for each of Vermont's 15 river basins on a five-year rotational cycle. These plans document explicit actions that have been identified through integration of watershed modeling, water quality monitoring, pollution assessments, and stakeholder input. The Agency of Natural Resources (ANR) assists in the implementation of the plans by using State and federal funding sources, partner support and the public rule-making process for certain protection efforts. The two plans which cover Woodbury are the Winooski River Tactical Basin Plan (TBP), last updated in 2018, and the Lamoille River Tactical Basin Plan which is currently available to review in draft form and will be finalized in the coming months. Participation in the development of these plans can help make sure local watershed concerns are addressed and solutions can be implemented with the support of regional and state partners.

Forest Today, the majority of land in Woodbury is forested (about 86%). Forests help with air purification and carbon sequestration, recharge and purify ground water and act like a sponge, absorbing precipitation and snow melt to be taken up by plants or evaporated back into the atmosphere. Forests also provide the crucial habitat for the health and sustainability of native plants and animal populations. Recent survey respondents highly value Woodbury's clean air and water.

➲ Additional maps are contained within the Woodbury Town Plan 2021 Data & Map Appendix: Slope Map | Elevation Map | Sub Watershed Map | Regional Wildlife Linkage Map Forest Integrity Map | Wetlands, Vernal Pools and Rare, Threatened, & Endangers Species Map | Agricultural Soils Map | Current Use Parcels Map


HARDWICK
ELMORE
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CABOT
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Map A: Natural Setting
Legend
Highest Priority Surface Water and Riparian Areas
Highest Priority Interior Forest Blocks
Highest Priority Connectivity Blocks
Rare Species
Wetlands
Lakes and ponds
Roads
State Highway
Town Highway Class 2-3
Town Highway Class 4
Private Road
Legal Trail
Miles
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CVRPC

Similarly, Woodbury residents recognize the value of local forestlands for their hunting and recreational opportunities as identified during the virtual Community Values Mapping Workshop conducted in early 2021 and facilitated by VT Department of Fish and Wildlife. This land has also been identified by the State as Highest Priority Interior Forest Blocks (as defined by Vermont Conservation Design and BioFinder) due to the best contiguous interior forest conditions they provide for ecological and wildlife habitat values. These blocks are primarily forest but also include wetlands, rivers and streams, lake and ponds, cliffs and rock outcrops. These blocks are also part of the Worcester Range to Northeast Kingdom wildlife linkage, connecting contiguous forest from the Northeast Kingdom eastward to Northern New Hampshire and Western Maine and to the Northern Green Mountains to the west. As of the writing of this plan, the pending sale of the Woodbury Mountain interior forest block to the Northeast Wilderness Trust for the purpose of making it into the Woodbury Mountain Wilderness Preserve will ensure the conservation of the block into the future.

Big Back Yards

Average home range of a:
Male bobcat is 27 square miles and a female is 8.8 square miles.
Black bear is 19,200 acres.
Moose is between 1,280 and 12,800 acres.
Fisher is between 4,747 and 9,600 acres.
River otter is between 15 and 30 linear miles of stream.

Source: Staying Connected

Vermont Conservation Design & BioFinder

Developed by the Vermont Agency of Natural Resources (ANR), Vermont Conservation Design presents a holistic approach to identifying locations of ecological priority. This information is displayed though BioFinder. BioFinder is a database and mapping tool for identifying Vermont's lands and waters that support important ecosystems, natural communities, habitats, and species.

The southeast quadrant of town, identified as a Highest Priority Connectivity Block, indicates the value of existing forest cover to provide suitable habitat for wide ranging animals to move across their range and to find suitable habitat and creates opportunities for ecological processes and species diversity as climate and land uses change.

Statewide, forest cover peaked in 2007, and Vermont is now losing about 1,500 acres per year largely due to the fragmentation of larger parcels into smaller ownerships and the sub-dividing ("parcelization") of land into residential lots. Data from the Vermont Parcelization website illustrates this phenomenon- from 2006 to 2016 the number of parcels greater than 100 acres have been decreasing, and while the number of parcels in the 50-100 acre size have grown has a result, there has been a decrease in the number of parcels which are in the 25-50 acre range and an increase in the number of parcels which are under 25 acres.

Over time and incrementally this trend will have the effect of forest fragmentation and subsequent parcelization will affect the economic viability of silviculture (the growing and cultivation of trees) and reduces the connectivity of forest lands that supports wildlife. Maintenance of the Highest Priority Interior Forest Blocks and ensuring wildlife connectivity is valued at the local and regional level. Under current zoning the minimum lot size requirement is 3 acres across most of the town (with lower acreage requirements in the villages and shoreland areas) and the town does not have subdivision regulations which can guide the division of land. 47% of recent Survey respondents supported the idea of a "conservation reserve" zone with larger lot sizes, which is an additional method towards protecting the integrity of forestlands.

Surface Waters In addition to forests and woodlands, Woodbury's significant surface waters and riparian areas hold rich ecological value. Highest Priority Surface Waters and Riparian Areas, as identified by BioFinder, serve as important habitat for aquatic species. Ensuring the connectivity of aquatic habitats is important for maintaining species diversity and to ensure fish and other aquatic populations can travel extensively throughout the network for seasonal and life cycle needs.

Woodbury Lake and Ponds

1. Buck Lake (39 acres)
2. Cranberry Meadow Pond (28 acres)
3. Dobson Pond (3 acres)
4. East Long Pond (188 acres)
5. Goodall (7 acres)
6. Greenwood Lake (96 acres)
7. Leech Pond (4 acres)
8. Little Mud (10 acres)
9. Nelson Pond / Forest Lake* (133 acres)
10. Nichols Pond (171 acres)
11. North King Pond (3 acres)
12. Smith Pond (4 acres)
13. South King Pond (4 acres)
14. South Woodbury Mill Pond (6 acres)
15. Valley Lake / Dog Pond (88 acres)
16. Walton Pond (13 acres)
17. Wheeler Pond (4 acres)
18. Woodbury Lake/ Sabin Pond* (142 acres)

*straddles Woodbury and Calais boundary

Note: Nelson Pond, Valley Lake, and Woodbury Lake are also referred to as Forest Lake, Dog Pond, and Sabin Pond respectively.

Ensuring habitat areas connect is equally important as the habitat itself. Connectors may be land or water that links larger patches of habitat within a landscape to allow for the movement, migration, and dispersal of animal and plants. They can be a forest block, riparian area, or a specific road crossing that wildlife repeatedly use. A number of roads in Woodbury are classified in BioFinder as Highest Priority Terrestrial Road Crossing, which can limit animal movement. Probably the most critical is Woodbury Gulf (RT 14 from Buck Lake Road to the Hardwick town line.) This particular section, and possible future development along it, controls wildlife movement between the Northeast Kingdom and the Northern Green Mountains as mentioned above. Another similar "choke point' for wildlife movement is the far northeast corner of the town, east of Nichols Pond.

Wetlands are an integral component of the surface water complex. Totaling over 1000 acres, wetlands within the Town include swamps, marshes, fens and vernal pools. They are inhabited by a unique variety of plants and animals and are critical to the process of purifying surface and underground water supplies, storing floodwaters during excessive rains and replenishing water supplies in dry weather, and providing for productive and diverse biological communities. The Vermont Wetland Rules (VWR), establish three classes of wetlands, which are used to determine the level of protection under these rules. Class One and Two wetlands are "significant wetlands" and therefore are protected under the rules. Class Three wetlands are defined as "those wetlands that are not designated as Class One or Class Two wetlands." Most wetlands in Woodbury are Class Two wetlands and as such are regulated by the State. Development or land disturbance is required to respect a 50 foot buffer zone contiguous to all Class Two wetlands to ensure the integrity of the wetland is maintained.

Woodbury's lakes, wetlands, and riparian areas host many of the State identified Rare, Threatened and Endangered species and are tracked by the Vermont Fish & Wildlife Department Natural Heritage Inventory. So defined, they have very particular habitat requirements, are at the edge of their range, are vulnerable to disturbance or collection, or have difficulty reproducing. Their exact locations are not specifically mapped as a method of protection and they include rare vascular plant species along with invertebrate and vertebrate species. Limiting disturbance of these areas helps ensure species biodiversity, a critical component of a healthy ecosystem.

Due to the town's location high in the watershed basin, coupled with the great retentive capacity of its numerous lakes and wetlands, means that Woodbury does not contain extensive flood prone areas. There are limited areas of mapped special flood hazards as identified by FEMA's National Flood Insurance Program (NFIP) and as a member of the NFIP the town is obligated to manage development in the FEMA floodplain according to federal standards. In return property owners are eligible for flood insurance.

The mapped NFIP special flood hazards are principally located around the perimeter of Nelson Pond / Forest Lake and Sabin Pond / Woodbury Lake, however some of the smaller tributary streams are subject to flash flooding and fluvial erosion. The Center Village has been prone to flooding in the past, primarily due to the location of the old village store and gas station which was built over a channelized stream. The building created an obstruction to floodwaters causing water to be diverted into and around the building. This resulted in ponding on Route 14 and water damage not only to the store but to the adjacent house and fire station across the road. A few years ago, the Town received FEMA funding to buy out the store property to remove the store building. The next step in the process will be to restore the natural streambank

and localized floodplain to further mitigate and minimize flood hazards. The 2018 Local Hazard Mitigation Plan (LHMP) includes additional information about flood hazard areas. Its contents and associated mitigation strategies are incorporated into this plan by reference.

The removal of vegetation in riparian areas causes the flood retentive capacity to become unstable with stream bank failure in large storm events, leaving adjacent land prone to increased flooding. The most frequent flooding occurs in early spring as a result of snow melt and heavy rains, but flooding has historically occurred in every season. Protecting floodplains, river corridors and riparian areas from encroachment helps retain their natural flood retention functions and decrease damages to public and private property.

The negative effects of flash flooding and stormwater run-off are exaggerated by the development of impervious areas such as roads, parking lots, or buildings; and is exacerbated when the clearing of land is coupled with the presences of poor soils. The runoff is also frequently laden with pollutants such as sediment, nutrients, oils, and other pathogens. The Town has undertaken a stormwater master plan which will help divert some pollutants, however sound management practices in the development of private property will also be needed. (For more info about stormwater management see Rural Services and Infrastructure Chapter.)

Groundwater Groundwater is another essential component of a healthy ecosystem and is intricately connected to the health of area surface waters and wetlands. In dry times and in time of drought, small streams retain the ability to flow from groundwater aquifers maintaining critical habitat for many species. Based upon the 2018 Vermont Groundwater Management Plan, "It is essential that groundwater be more thoroughly investigated and considered, not only in its own right as a valuable resource in need of management and protection, but also as part of an integrated systems approach to understanding and preserving Vermont's environmental health." Currently little is known about the local or regional recharge and discharge areas. The State is working to improve information available for groundwater management for both public health and the environment. Most of Woodbury residents rely on groundwater as a source of drinking water. There is one public water supply which serves the elementary school and the mapped spring protection zone is located uphill from the property. (Additional information about Public Water supply is contained within the Rural Infrastructure Chapter.) Drought and contamination from human activity can threaten this local critical resource, especially in areas with a high water table and in higher density areas, such as in Woodbury Center Village.

Water Quality The environmental quality of Woodbury lakes and ponds has been a concern of Woodbury residents for over three decades. In 1991 the town

commissioned the "Woodbury Lakes and Ponds Study" (LPS), which was undertaken as a result of public concern about water quality. The report includes information about the geology, geography and hydrology of the area and at that time found that the Town's water bodies appear to be in reasonably good condition. Today lakes in Vermont are assessed and scored on the VT Inland Lakes Scorecard which is a user-friendly interface developed by the Vermont Lakes and Ponds Management and Protection Program (VLPP). The Scorecard provides available data on overall lake health by providing a rating of a waterbody's nutrient trend, shoreland and lake habitat, atmospheric pollution, and aquatic invasive species. Most appear to be in reasonably good condition with respect to water quality, although some have elevated levels of phosphorus. The following Woodbury lakes have been identified within the Winooski River Tactical Basin Plan for priority actions:

Priority Lakes/Ponds	Priority Action	Rationale
Greenwood Lake	Shoreline protection	Shoreline and habitat ranked Poor, but not yet affecting water quality conditions and trends.
Nelson Pond/ Forest Lake and Sabin Pond / Woodbury Lake	Watershed assessment and work to address sediment	Poor (Nelson Pond / Forest Lake) to Fair water quality trends

Contributing factors to this assessment include increased development along shorelines as local ponds and lakes continue to be attractive locations for residential development coupled with increased recreational usage. The town's Shoreland Zoning District applies to bodies of water 20 acres or greater and includes basic setback and tree clearing provisions. The 2014 Vermont Shoreline Protection Act is designed to regulate activities within 250 feet of the mean water level of lakes greater than 10 acres in size. The intent of the Shoreland Protection Act is to allow reasonable development along the shorelands of lakes and ponds while protecting aquatic habitat, water quality, and maintaining the natural stability of shorelines. The State is responsible for the permit processes and a partnership with the town is critical to its successful implementation and resulting ecological benefits. 2021 survey respondents highly value Woodbury lakes and ponds, and water pollution was identified as a concern.

Roads such as Route 14, County Road, Cranberry Meadow Road, Herricks Cove Road and Dog Pond Road skirt lake shorelines, requiring maintenance and repair projects in close proximity to the surface waters. Implementation of the Municipal Roads General Permit (MRGP) and Stormwater Master Plans are designed to help increase water quality and lessen runoff into waterways. (See Rural Services and Infrastructure Chapter for additional information about MRGP and stormwater.)

Natural Features and Ecological Systems Goal: Protect and conserve Woodbury's forests, lakes, ponds, and wetlands to maintain and improve ecological functions.

Working Lands

Woodbury's history is rooted to the ability of its residents to work the land and make a living from it. The town was primarily established as an agriculture-based community and does contain some good farmland soils. They are located primarily along the Calais border, between Nelson Pond and East Hill in South Woodbury, and in the vicinity of West Woodbury, located in the extreme northwest corner of Town. A limited amount of land is currently in active agricultural use and a small percentage is enrolled in Vermont's Use Value Appraisal program for agricultural use. Although few of Woodbury's agricultural landowners are full time farmers, the open spaces they provide still play an important role in defining the character of this rural community.

Today forest land is critical to Woodbury's identity. These lands not only provide valuable ecological benefits, many of Woodbury's large, managed forest parcels are important sources of lumber and cord wood. The fact that more than half of Woodbury's households burn wood as their primary heat source (compared to 18% for the Region), attests to its availability and local importance. Compared to agriculture, a significant amount of land (56%) is enrolled in Vermont's Use Value Appraisal Program as forest use. If large parcels of forest are fragmented through subdivision, the natural and economic value of the forest decreases and silvicultural practices become less economically viable and less aesthetically desirable to new residential neighbors. The Current Use program is one of the most effective forest conservation tools, serving the economic interests of land owners as well as the public good.

Working Lands & Water Quality

Farming practices are expected to adhere to the State's Required Agricultural Practices (RAPs) which include required practices and management strategies to reduce the impact of agricultural activities on water quality. For more information: https://agriculture.vermont.gov/rap

Silviculture and Forestry operations are expected to follow the Acceptable Management Practices (AMP's) to maintain water quality on logging jobs. For more information: https://fpr.vermont.gov/forest/managing-your-woodlands/acceptable-management-practices

Current Use Program

Use Value Appraisal, or "Current Use" as it is commonly known, is a property tax incentive available to owners of agricultural and forestry land in Vermont. Eligible landowners can enroll in the program to have their land appraised at its Current Use (farming or forestry) value rather than fair market value. This method of appraisal results in significant property tax savings to the landowner in every year that the land remains enrolled in the program. While enrolled, the land cannot be developed and, instead, must remain agricultural or forest land. If the land gets developed then the landowner will lose the favorable tax status and pay a financial penalty.

Source: VNRC

From the late 1800's to the 1940's granite extraction was the major industry in town. The Swenson Granite Company quarry (off the Woodbury-Cabot Road), which was re-opened in the 1970's, continues to operate and recently expanded (also see Local Economy section.) Other earth resources in Woodbury include: pyrite, smoky quartz, apatite, zircon, calcite, feldspar, epidote, rutile, magnetite, and most importantly, sand and gravel. Woodbury's sand and gravel deposits are glacial in origin, and, like human habitation, agriculture, and groundwater resources, these deposits generally follow the courses of streams. While sand and gravel deposits may yield needed materials for road and building construction, these coincidental development patterns render their extraction a matter of some sensitivity. Any new operation to extract sand and gravel shall have no undue adverse effect on aesthetics, natural features, or ecological systems, or on the orderly development of any property in the affected area, or of the Land Use District in which the operation is located.

Working Lands Goal: Strengthen and promote the long-term viability of working lands that are committed to sound management practices and contribute to the local economy

Scenic Areas

Woodbury's natural setting contributes greatly to its scenic beauty and its unique identity. The lakes, ponds, wetlands, forests, and hills as well as its historic and cultural resources are of great value to the residents. (For more about Historic and Cultural Resources see the Sense of Community Chapter.) In a 2021 community survey that asked residents and property owners, "are you in favor of setting aside or somehow preserving certain scenic, historic or natural area?" 74% of respondents said yes. As reinforced by this survey and by the Community Values Mapping Workshop, Woodbury's most outstanding scenic features include: the broad views of Woodbury's landscape enjoyed from Nichols Ledge; the undeveloped ridgeline of Woodbury Range; and the surface waters that distinguish Woodbury as the "Land of Lakes and Ponds." Development of these areas—specified and supplemented in the section titled "Use of the Town Plan in Permitting"—shall be regulated to preserve their scenic beauty and value to the community. Appropriate and effective regulations are optimally formed and

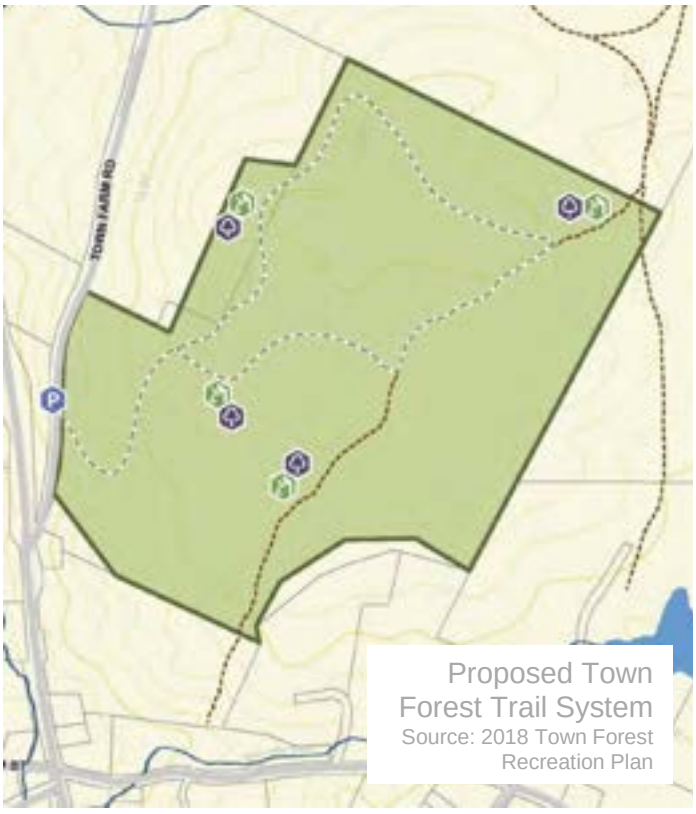
implemented through participation and cooperation among residents, property owners, and public officials.

Scenic Areas Goal: Protect and maintain significant scenic areas and views.

Outdoor Recreation

Woodbury's natural setting provides a wealth of outdoor recreation opportunities. Many residents enjoy hiking, hunting, fishing, boating, swimming, cross country skiing, snowshoeing, snowmobiling, ice skating and off road motorsports. The town maintains a collection of public lands that are open for public recreation, they are primarily located in the vicinity of Woodbury Center Village and include the 65-acre town forest, the school playground and adjacent baseball field, and the Woodbury Center Village wetland property. During the winter months, in partnership with the Friends of the Woodbury Elementary School, a community ice skating rink is formed behind the Town Hall. (For more information on these facilities see the Rural Infrastructure Chapter.)

In 2018 the town participated in a collaborative project with the Department of Forest, Parks and Recreation to develop a Recreation Plan for the town forest. The plan adeptly identifies that "outdoor forest-based recreation is both a great opportunity and a growing challenge. Recognition of the economic and community benefits of forest-based recreation is on the rise. Concurrently, increased pressure from multiple recreation groups accentuate the need for planning assistance to balance the growing recreation interests and the health of the forest." The development of the Recreation Plan was in response to this recognition and proposes a balanced approach for use of this public resource.



Proposed Town Forest Trail System
Source: 2018 Town Forest Recreation Plan

The Town Forest Recreation Plan proposes rehabbing sections of an existing trail and building a new interconnected trail loop to expand non-motorized recreation at the town property. The plan includes an action plan with corresponding strategies for parking and access; trails; other facilities and structures; education and programs; mapping, outreach, and promotion; and administrative actions which include the development of a management plan.

Abandoned railroad beds and Class 4 roads, as well as trails and logging roads on private land, provide recreation for hiking, bicycling, cross-country skiing, snowmobiles, dirt bikes and ATVs and other all-terrain and off road motorized vehicles. It should be noted that logging roads and trails on private property are not automatically available for public access. Gaining permission is recommended before accessing private property. Woodbury's back roads are popular with bicyclists and local organizations have put together recommended bike routes in the area.

The Vermont Association of Snow Travelers (VAST) maintains a seasonal network of snowmobile trails through Woodbury that is enjoyed by many residents and visitors alike. A private golf course operates on East Hill Road and during the winter months the property is open for cross country skiing. The State owns boat launches on Greenwood Lake, Nelson Pond / Forest Lake and Sabin Pond / Woodbury Lake, providing public access for fishing and boating to the larger lakes. The State also owns a primitive fishing access on Dog Pond / Valley Lake. The State of Vermont also owns the 275-acre Buck Lake Wildlife Management Area which is open for public recreation and provides a primitive fishing access to Buck Lake. The Department of Fish and Wildlife owns and operates the Green Mountain Conservation Camp on this land each summer. The camp offers week-long youth camping experiences with an emphasis on learning about the environment and outdoor sporting skills.

Linking the school and the town forest properties together with a pedestrian path or trail with other Village locations would be a great benefit to enhancing the existing recreational amenities. Linking local trails to more extensive regional networks could also be explored as a method to expand recreational access for residents and visitors.

The town has underutilized town green spaces in the Village which could be used for outdoor gatherings and events. Despite the wealth of lakes and ponds in the town, there is no public swimming area for town residents. There has been ongoing discussion over several years about establishing a beach for public use. The survey conducted in 2000 showed overwhelming support for a Town-owned and managed beach which was echoed in the 2020 Survey. The majority of respondents also supported the town to raise funds for such a facility. A public beach and swimming area would be an outstanding resource for residents of all ages. Collaboration with neighboring private property owners and other lakeshore owners would be necessary.

Outdoor Recreation Goal: Increase recreational opportunities afforded by Woodbury's natural setting for residents and non-residents.

Sense of Community

Historic & Cultural Resources

Woodbury's natural setting did and will influence past and future settlement patterns and uses of the land. Abenaki Native Americans occupied most of Vermont region prior to European Colonization. Abenaki hunted and fished throughout the area, traveling along waterways and established trails. They had no formal written language and little evidence of their activities and settlement locations have been discovered. According to a Times Argus article titled "Along the route of Native Americans" dated September 9, 2006, a pair of 6,000 year old spear points were found in the vicinity of Nelson Pond/Forest Lake and Number 10 Pond (aka Mirror Lake). Archeological evidence in Vermont and New England indicates indigenous people likely formed transient settlements in river valleys and at the confluence of waterways, and as such, these places in Woodbury may hold undiscovered archeological evidence.

Petroglyphs carved into the bedrock near Cranberry Meadow may be evidence of pre-colonial inhabitants in Woodbury. As stated in the newspaper article referenced above, State archeologists believe the footprints were carved before 1800. Local legend suggests the waist-high rock carvings may have been etched by more recent residents. While their origin has yet to be verified, their existence is a topic of unique local lore.

Much of Woodbury's human history is reflected in its built environment and can be attributed to European settlers. The Town was chartered on August 16, 1781

by the Vermont legislature to Colonel Ebenezer Wood, William Lyman, Esq., and sixty associates. Woodbury was an agricultural community, early inhabitants found the best farmland in the western and southern parts of town. In the early 1800's the first village settlement grew up around a sawmill located in South Woodbury. Through the 19th century, additional water-powered industries, stores, a post office, Congregational Church and one of the town's ten school houses was established in the hillside village. As identified in the State's Historic Sites and Structures Survey many of the village structures were built in the Greek Revival style and as the area has experienced little new construction, the hamlet is clearly recognized as historic settlement from a bygone age.

During the 1880's, several small granite quarries were operating in the hills of Woodbury, but production was limited by the lack of efficient transportation. In late 1894, a company was chartered to build a 9.5 mile railroad between the quarries in Woodbury and the finishing mills in Hardwick and granite extraction became the major industry and led to the Town's rapid growth in the late 1800's. "Woodbury Gray" granite was used in the construction of the Pennsylvania State Capitol in Harrisburg and the City Hall & Cook County Courthouse in Chicago. The local stone has also been featured in other buildings across the country including hundreds of banks and post offices. Elements of Woodbury's rural landscape are prominently integrated into other cities' built environment.

Additional information about the local granite history can be found on the Swenson Granite blog post titled "The Rich History of Woodbury Gray Granite" posted by Amanda Pittsley on October 14, 2019

The granite industry drew prominence away from South Woodbury Village, and Woodbury Center Village grew up along the banks of the Kingsbury Branch and the major north-south transportation route. This location become the political center of town and the Woodbury Town Hall built in 1842 is among the oldest in continuous use. The Methodist Church was built in the Center Village and a granite company store was located nearby. Much of the granite worker housing was also built in the vicinity due to its easy access and level building sites. The buildings reflect examples of Greek Revival and Queen Ann style architecture, the prevailing styles of 19th Century New England. In the late 1800's and at the height of the granite industry boom, the quarry owner built a small company village comprised of six homes east of the Village Center. Today fourof the original homes remain and their connection to Woodbury's industrial hey-day is likely little known by current residents. The current zoning regulations in South Woodbury and Center Village require one acre per dwelling unit and two acres for commercial uses, which in some cases would result in a new development pattern which is a departure from the historic settlement pattern.

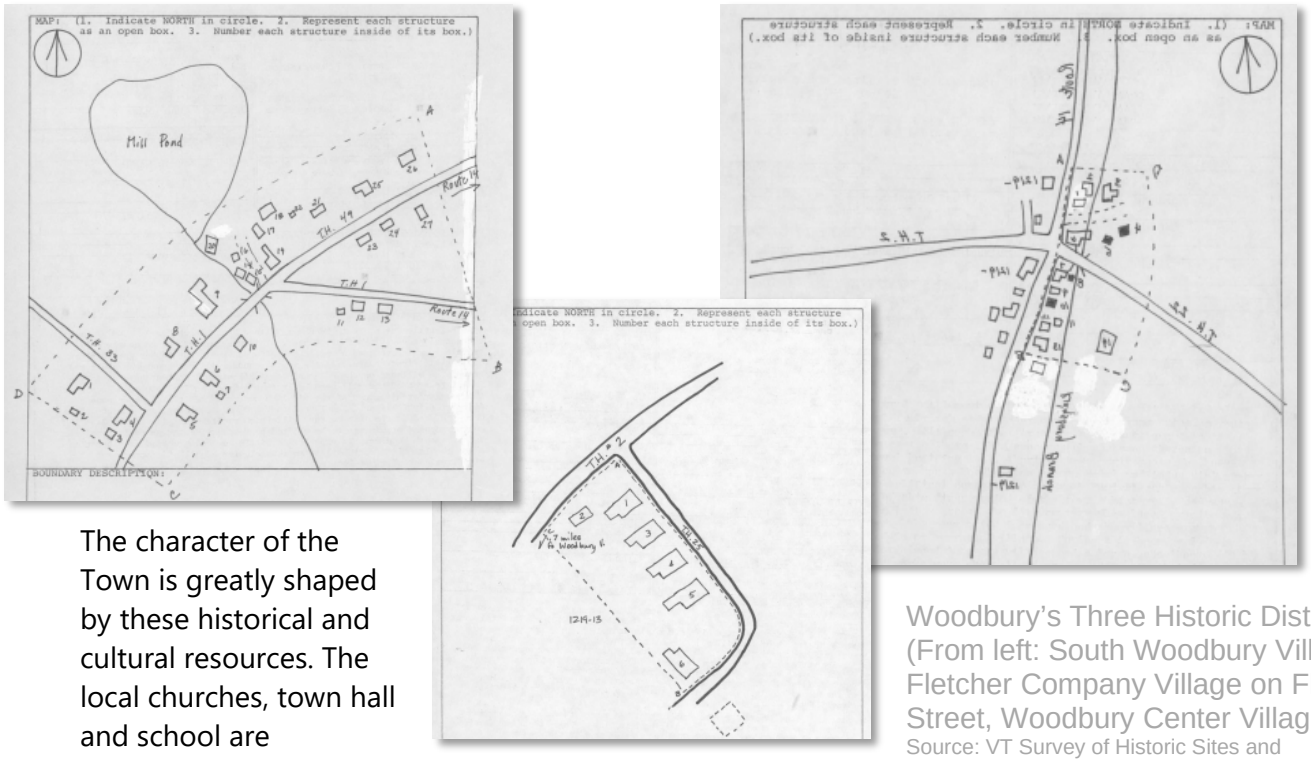
A more prominent response to Woodbury's rural prosperity was the construction of the Woodbury School in 1901. Located on the west side of the Center Village, the school was built with four large classrooms on the main floor, smaller classrooms and offices on the basement level and a gymnasium on the top floor. The building is a unique and substantial asset as it has continued to function as an educational and community center for the town.

Historic view of the Woodbury Graded School
Source: VT Survey of Historic Sites and Structures

During this same period, at the turn of the 19th century, American workers were being afforded more time off work giving rise to an increase in leisure time. People sought respite in rural locations to escape from industrialization in urban areas. In 1915 the White Rock Inn was constructed and drew visitors to enjoy Woodbury Lake / Sabin Pond. Over time small, privately-owned lakeside cabins and cottages replaced the larger hotel(s). Woodbury's lakes have continued to attract seasonal residents and visitors resulting in a strong summer lake community.

The onset of World War 1, coupled with a declining demand for granite, saw the closure of the granite quarry and Woodbury returned to an agricultural community. The back-to-the-land movement of the late 1960's and early 1970's, along with the completion of the interstate system, drew a wave of in-migration to Central Vermont and Woodbury. A 2014 Vermont Historical Society article (*Vermont History* Vol. 82, No 2) indicates there was at least one commune within town borders. This population increase resulted in the reoccupation of farmsteads and new residential development along back roads. Today Woodbury is a bedroom community, no longer reliant on agriculture, and visible evidence of the counterculture impact is not obviously seen, however remnants of this social movement is integrated into the fabric of Woodbury's cultural history.

In addition to the buildings of historic and architectural importance, the town currently maintains five cemeteries, each with some gravestones dating from ca. 1840. For example, historic research found Woodbury had the distinction of sending more of its sons to fight in the Civil War than any other town of its size in the state. As with all cemeteries, there is much local history to be assimilated at these sites and they provide a visible record of the town's ancestors.



Woodbury's Three Historic Districts (From left: South Woodbury Village, Fletcher Company Village on Flat Street, Woodbury Center Village)
Source: VT Survey of Historic Sites and Structures

The character of the Town is greatly shaped by these historical and cultural resources. The local churches, town hall and school are significant resources which have served, and continue to serve, as important and valuable community and civic gathering places. They host important and beloved cultural events, such as the annual Pie Breakfast and the Bessie Drennan Days.

Today, the Woodbury Elementary School and Town Hall are both listed on the National Register of Historic Places; the Woodbury Elementary School is listed on both the State and National Register of Historic Buildings. Being listed on either the State or National Register does not, in itself, impose any obligation on the property owner. There may be some considerations to take into account if building improvements are to be undertaken with State or Federal funding.

The map of Woodbury from Beers Atlas of 1873, depicts locations of buildings and structures in existence at that time. When compared with existing development, it can serve as a valuable resource in identifying potential historical or archeological resources. Additionally, in 1979 the State undertook a Survey of Historic Sites and Structures in Woodbury. The inventory includes a narrative description and photographs of three historic districts (South Woodbury, Woodbury Center Village and Fletcher Worker District) and many homes and out-buildings. The listing is outdated and buildings listed in the inventory affords no specific protection for a structure or benefits for its owner. It is merely intended to catalogue historic resources, which may serve to facilitate individual or local protection efforts.

The Woodbury Historical Society coordinates talks and events about local history and members have formed an informal archive. Displaying and preserving the collection for the benefit of current and future residents would be a unique local asset.

Historic and Cultural Resources Goal: Protect and preserve important historic and cultural resources and make information about these resources available.

Housing

Based upon the 2019 American Community Survey (ACS) data there are 662 housing units in Woodbury. Almost half(48%) are classified as vacant by the Census Bureau, meaning these units are only in use during certain seasons or for occasional use throughout the year. Since 2000 it appears the number of vacant units has decreased slightly (-4.8%), however this overall percentage is considerably higher than the County and State figures.

Woodbury 2020 Grand List	
Residential Units	413
Apartments	0
Seasonal Units	259
Total	672

More recent data released from the Vermont Tax Department illustrates the increase of residential property purchases by out-of-state buyers in recent years. This trend increased dramatically during the COVID-19 pandemic. In the past 4 years, the number of transactions where a buyer listed an out of state mailing address increased from zero transactions to 8 in 2020. This number is higher than trends experienced in neighboring Central Vermont towns. Across the state resort towns have experienced the greatest impact. Monitoring this data into the future will provide insight into how COVID-19 has impacted people's preferences and local demographics.

Woodbury has a strong summer lake community. Based upon 2021 survey results, respondents stated they do not anticipate moving to their second home permanently in the near future, however local knowledge may indicate otherwise based upon current activity. Preparing for some of these seasonal homes to be converted into year-round owner-occupied units should be expected. While "adaptive re-use" of vacation homes is not in itself undesirable, this trend may exacerbate such issues as limited septic capacity, shoreland encroachment, and deteriorating condition of camp roads.

Just over 30% of the current housing stock was built before 1940, and then the pace slowed in the succeeding two decades. Housing construction then picked up in the 1960's and experienced a steady average growth rate of 11.5% per year over the following 50 years; this follows a similar trend throughout Central Vermont. Since 2010 the rate of growth has dropped off, and on average only approximately 3 units have been built each year since. As a third of the stock was

built before 1940, and half the stock was built before 1970, lead paint may be a concern along with rising costs associated with maintaining and heating older buildings.

The majority of residents (70%) own their homes and based upon American Community Survey (ACS) data all homes are single, detached units (i.e., single family dwellings and mobile homes). Recent Grand List data also lists zero commercial apartments, however it should be noted that based upon local knowledge there are at least a handful of small apartment buildings in town. A small number of property owners are choosing to lease units as short term rentals, based upon housingdata.org; in the past couple of years about eight to ten properties were available in Woodbury. The lack of multi-family dwellings (such as two, three, or four-unit buildings) indicates a lack of options for people seeking less expensive housing or those who live alone, or wish to downsize. Additionally there are no group quarters or group living facilities which would include nursing homes, homeless shelters or other types of care homes. As people in Woodbury age, residents seeking or needing assistance would likely have to leave the community. Current zoning regulations require one or three acres per dwelling unit, depending on the zoning district, which inhibits the viability of being able to convert an existing building or develop a new building with two, three, or four-dwelling units.

Recent survey responses indicate that one of the primary reasons people live in Woodbury is affordable housing. Median reported home sale prices have fluctuated over recent years and in some years actually exceeded County-wide medians. The fluctuation can be attributed to the small number of sales per year in Woodbury, but in general home values continue to increase and are on a similar trend to County medians.

A common definition of housing affordability is that total housing costs are less than 30% of household income. Based upon this measure the majority of current residents are able to afford to live in Woodbury and are not cost burdened. The U.S. Department of Housing and Urban Development (HUD) defines low-income households as those with income between 30%-50% of the county median income ($20,497 - $34,161) and moderate income households as those with between 51-80% ($34,161 - $54,657.) These households would struggle to find housing which is affordable in Woodbury. According to VHFA's Affordable

➲ Housing and Economic Data Charts are contained within the Woodbury Town Plan 2021 Data & Map Appendix:

Estimated Housing Units by Housing Type Chart | Estimated Housing Units by Year Structure Built Chart | Median Home Sale Price Chart | Unemployment Rate Chart | Occupations Chart | Means of Transportation to Work Chart

Housing Directory, there are no subsidized affordable rental housing units for low income families.

Most of the residential development has occurred outside of the historic village areas, away from the major transportation route and along Class II and Class III roads. As Woodbury is no longer an agricultural-based community most households rely on individual vehicles to travel to work and access basic services such as groceries. Individual transportation expenses (gas, maintenance, insurance and registration) are additional costs that should be factored into the cost of living in Woodbury.

Housing Goal: Increase the diversity of housing options to meet the needs of a wide range of income levels and preferences.

Local Economy & Community Development

In the past couple of years the labor force in Woodbury has averaged about 568 people. The exact number fluctuates slightly in part due to seasonal changes. Unemployment has been lower than the State average and while local residents did experience some increase in unemployment due to the recent COVID epidemic, recent figures suggest people are returning to work.
During the height of the granite industry in the late 1800's the local quarry employed thousands of people who lived in Woodbury. The process of extracting the granite has changed and no longer relies on significant human power. While the quarry is very productive, it only employs a handful of people. The elementary school is one of the largest employers in town. The town maintains a local business directory on the municipal website, it includes a variety of personal services including home, garden, vehicle maintenance and repair. Last year's Grand List data indicates only 11 commercial/industrial properties in Woodbury. Aside from the school, the majority of local businesses and places of employment are small scale, sole proprietorships, and often work is done at home.

The two villages used to be the center of commercial activity, however today the majority of economic activity is dispersed. In 2015 the town undertook the Planning for the Future of Woodbury Village planning project in part to "Explore options for strengthening the town's economic base" including assisting the town with developing a Village Plan that "should look at employment potential in the village along with community services and future roadway connections to village land..." Key recommendations included:

- A vibrant village with amenities and access to resources will encourage interest, investment and attract new residents.
- Identify public water supply/wastewater infrastructure improvements needed for future infill development, including potential limitations.

When asked in a recent survey what businesses they'd like to see in Woodbury, respondents overwhelmingly stated their support for a general store, with additional desires for a restaurant and/or café. Food service and food processing operations even at a small scale do require adequate water and wastewater capacity which may be limited at this time.

Today most residents (just over 80%) work outside of town and the majority of them head southward to the Montpelier/Barre area for work. The remainder (about 17%) work locally within the municipal borders. When asked in a recent survey, 40% of respondents said they would like to see more employment opportunities in Town. More local residents may be afforded the opportunity to work remotely as a result of the COVID pandemic, this would result in less people commuting on Route 14. However limited availability to high speed internet access could impact effectiveness of remote work and inhibit other business operations which would benefit or rely on this service. For more information see Telecommunication and Broadband Connectivity section.

Woodbury could potentially be on the cusp of a period of change in terms of demography and economic development driven by the expansion of broadband access and the potential influx of residents from other states seeking to escape climate change impacts.

The management, business, science and arts occupations sector employs almost 40% of Woodbury residents followed by the sale and office occupations. However the sale and office occupations sector is the one sector which has experienced the most growth, while employment in other sectors by Woodbury residents have been in decline.

Due to its abundance of natural resources, Woodbury has a history of land-based operations such as resource extraction and agriculture. Employment in this sector has been in decline and today employs about 17% of Woodbury residents. Forestry, agricultural and resource extraction, when undertaken in accordance with State regulations and adherence to best management practices, are viable industries which can help preserve the town's rural character.

The Woodbury median household income ($63,542 in 2019) has risen over the past decades and is now greater than the County and State medians. However wages earned by people who work in Woodbury are quite a bit lower. Data indicates there are about 120 jobs in Woodbury and 70% are filled by local residents. About 10% are filled by people from Hardwick and 5% from the Barre area.

Preparing the next generation to enter the workforce is an integral component of economic development planning. Studies demonstrate that the very early years (0-5 years old) are critical to the development of learning and skill building and that children who have high-quality early learning and development opportunities have greater success in school and in life. Quality affordable

childcare is critical to both working families (who are currently in the labor force) and childhood development (for the next generation of the labor force.) Based upon the Bright Futures Child Care Information System there are no licensed child care providers or registered child care providers in Woodbury. However there are 10 located in neighboring towns. Yet, most are located to the north in Hardwick, the opposite direction of most residents' daily commute.

Licensed Childcare Program vs Registered Family Child Care Home

Licensed Program: A child care program providing care to children in any approved location. The number and ages of children served are based on available approved space and staffing qualifications, as well as play and learning equipment. A Licensed program must be inspected by the Department of Labor and Industry's Fire Safety Inspectors and must obtain a Water and Wastewater Disposal Permit from the Agency of Environmental Conservation. A Licensed program is considered a public building under Vermont Law. Types of licensed programs include: center based child care and preschool program, afterschool program, and licensed family child care home.

Registered Family Child Care Home: A child care program approved only in the provider's residence, which is limited to a small number of children based on specific criteria.

Source: VT Department of Children and Families

Woodbury is within the Orleans Southwest Supervisory Union (OSSU) which consists of six schools which serve approximately 1,190 Pre-Kindergarten -12 students in eight school districts across six towns and four counties. The Woodbury Elementary School provides PK – 6 grade education to local children, who then must travel to Hardwick to attend Hazen Union High School. In 2019, as required by the State Board of Education under legislative Act 46, Woodbury School District was merged with Greensboro, Hardwick, Lakeview, and Stannard school districts to create the Orleans Southwest Union Elementary School District. The Woodbury Elementary School building is a historic resource and its continued educational function a valuable and essential community asset.

To access higher educational opportunities Woodbury residents could find a range of colleges and universities within a 1.5 hour commute. Vocational and technical training programs are less accessible with fewer choices and opportunities. As a result of the COVID pandemic more educational opportunities will likely be accessible remotely.

The mission of the 2020 State of Vermont Comprehensive Economic Development Strategy (CEDS) is to improve the economic well-being and quality of life of Vermonters while maintaining our natural resources and community values. The strategic planning document identifies challenges to economic development in Vermont and also lays out a set of high –level strategies toward

What is a statewide Comprehensive Economic Development Strategy? This statewide CEDS is a strategic document that establishes key goals the state will work toward over the next five years to improve the quality of life and economic wellbeing of all Vermonters while maintaining our natural resources and community values. It suggests the measures that can lead us there and identifies projects that may be implemented by a variety of organizations, public and private.

Source: 2020 Executive Summary, Vermont 2020 Comprehensive Economic Development Strategy

accomplishing the mission. These challenges and strategies are also applicable to Woodbury. They are summarized below:

Challenges	Strategies
Growing income and wealth inequality Aging infrastructure, or lack of (i.e. lack of sewer and water capacity) Aging population and sm. business succession Small tax base and limited funds for business incentives or infrastructure investment Natural resources base which is critical to VT brand (food, tourism, recreation) is vulnerable to climate change, pollution and resource depletion Managing run off and water pollution with land-based business High energy costs	Make financing accessible Educate workforce Build infrastructure Enhance the VT brand Preserve the working landscape Cultivate innovation Plan for resilience

The Central Vermont Regional Planning Commission (CVRPC), in partnership with the Central Vermont Economic Development Corporation (CVEDC) is currently in the process of developing a CEDS as part of a multi-regional effort (CVEDC provides business retention and expansion technical assistance and provides education and advisory services). Upon its completion this document will supersede the State CEDS and may provide additional information to Woodbury in its economic development planning in the future.

Economic development is primarily focused on the creation of wealth, in which community benefits are created secondarily. Whereas community development is a process for making a community a better place to live and work. During the public planning process Woodbury residents stated they valued the sense of community, and collectively expressed desires for a community gathering place (a third place to socialize which is separate from a place of employment or within a private residence) to foster social interactions such as a store, café or restaurant. In today's economy these types of private businesses in rural communities are likely challenged by high start-up costs and access to capital. However local Vermont communities (such as Peacham and Calais) are demonstrating success with forming public-private partnerships in order to preserve these rural hubs. Survey respondents also expressed interest in a town green-like outdoor space for picnicking, senior activities, or possibly to host a farmers market. In recent history Woodbury Village hosted two stores, which are now closed; the school and town library function as the principle gathering places for those who have young children and for people engaged in municipally sponsored activities and meetings.

During the course of developing this plan a Second Homeowner Survey was developed to understand more about this sector of Woodbury's population. As expected most second homeowners visit during the spring, summer, and fall months. Survey responses reinforced a desire for a local store and restaurant and indicate interest in a local market for groceries and home maintenance and repair supplies. Currently these are being procured in neighboring towns.

Local Economy Goal: Support the viability of local businesses, and increase access to employment, training and educational opportunities in Woodbury by encouraging provision of services.

Community Development Goal: Increase the vitality of our village centers, South Woodbury and Woodbury Center Village, to benefit the existing community and attract new residents.

Rural Services and Infrastructure

Transportation

Woodbury's transportation system has evolved considerably over the past 100 years. Its original purpose was to support an agricultural community with a few mills. Later it expanded to include a railroad line serving the granite quarries, construction began in April, 1896. This rail line featured extremely steep grades (averaging 5%, with a maximum of 7%), and reached 1,130 feet in elevation, the highest point served by a Vermont railway. The peak years for the quarries and the railroad were 1904-1916, and passenger service was offered from 1911-1919. Today there are no active rail lines in Woodbury providing passenger or freight service. The closest airports providing limited passenger service are located in Morrisville and in Berlin. Private airstrips are not uncommon in Vermont and in recent years resort towns have seen an increase in private helipads. While one was proposed in Woodbury, it was never constructed. The principal mode of transportation in Woodbury is via automobile, truck or van.

As identified in the Economic Development section, most employed Woodbury residents commute to other municipalities for work. Like most Vermonters, the majority of Woodbury commuters (about 77%) drive alone in a car, truck or van. However the average commute time for locals is longer (35 minutes) compared to state average (23 minutes.) As noted in Woodbury's enhanced energy plan, transportation accounts for approximately one third of the overall energy use in Vermont, statistically higher than the National percentage. This is due to the state's rural character, more dispersed population, as well as a relatively small industrial base. Petroleum combustion in the transportation sector is also the

state's largest contributor to greenhouse gas emissions. One component of reducing fossil fuel-based energy used in the transportation sector is to convert or replace older vehicles with alternative fuel vehicles such as electric or biodiesel and provide EV charging stations locally. More data on this topic is contained within Woodbury's energy plan which is included in the appendix and incorporated into this plan by reference.

Very few people carpool to work and there is no park-and-ride facility located in town to support the organization of multiple people commuting together. The Town has the authority to designate a park-and-ride site, such as the Town Clerk's Office in South Woodbury, which already sees some unofficial use as such.

The Rural Community Transportation non-profit organization provides very limited public transit service through Woodbury along the RT 14 corridor. There are 2 stops in Woodbury. Green Mountain Transit Authority (GMTA), Vermont's only transit authority, coordinates limited shuttle service to the Plainfield Health Center and a network of volunteer drivers who can provide rides as needed for qualifying Woodbury residents, for medical appointments, shopping or visiting. This service primarily benefits the elderly and disabled. Low rural population density limits financial viability of bus and shuttle services;public transit agencies rely on ridership to demonstrate need, and also often rely on municipal financial contributions to support these types of services.

There are no sidewalks in Woodbury or designated bike lanes. Woodbury Center Village is one location which has experienced some pedestrian activity due to the proximity of the school, post office, former stores, informal town greens, and residential buildings. Recreational bicyclists prefer to travel the backroads. In 2015 the town funded the Woodbury Village Planning Study, the purpose of which was to develop Center Village streetscape design options. The report recognized existing conditions that included:

- Route 14 dominates the character of the village center; and
- Lack of sidewalks and consistent shoulder/break down lane hampers bicycle and pedestrian use and safety.

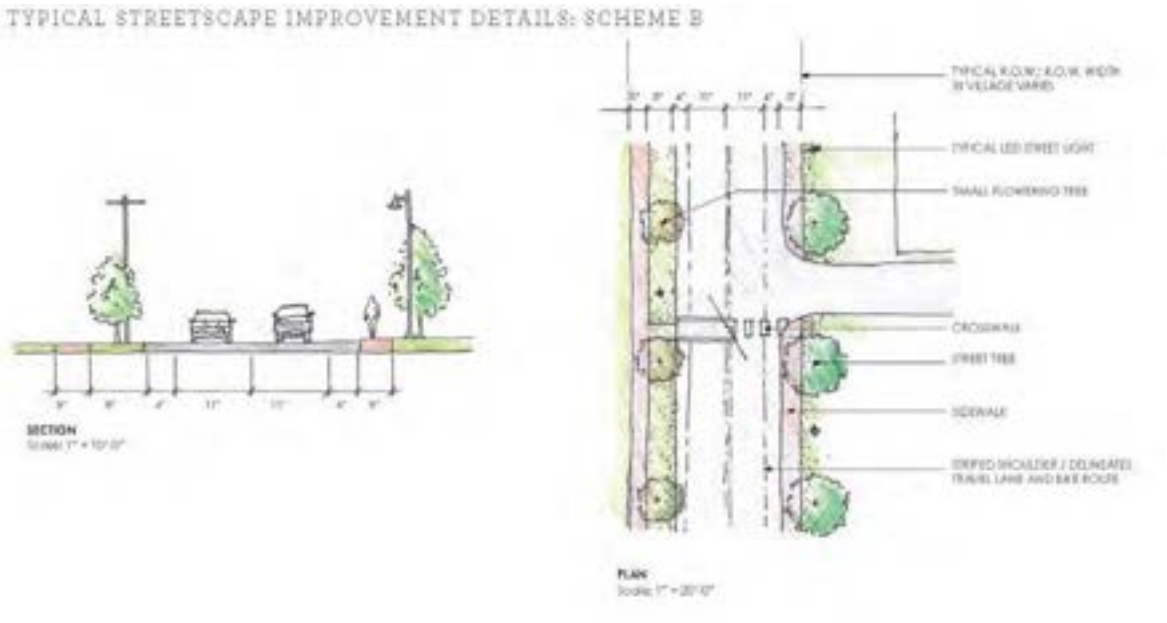
The Report identified issues and opportunities that included:

- With improving telecommunications and transportation networks more opportunities exist for attracting businesses that would benefit from a rural yet accessible location such as Woodbury.
- Connections and linkages to the town's exceptional water features can and should be explored.
- Streetscape enhancements need to be developed in concert with Agency of Transportation (VTrans) and their oversight and planning for State Route 14.

Specifically with regard to transportation-related items, the Report recommended:

- Connectivity to resources and assets north and south.
- Bike route on both sides of Route 14 connecting south from the Center Village to the boat launch at Sabin Pond / Woodbury Lake.

Overall conclusions included the development of streetscape designs to enhance the public realm and highway corridor that characterizes the village.



Village streetscape option
Source: Woodbury Community Planning Project

In 2011, the State adopted a Complete Streets policy which requires that the needs of all transportation users, regardless of their age, ability, or preferred mode of transportation (such as bike and pedestrians) be considered, regardless of the project's funding source in state and municipal transportation projects. While not an entirely new concept, adherence to this directive would also benefit a range of Woodbury residents.

Recent recreation planning efforts at the town forest located just north of the village has prompted recent interest to create a pedestrian link between the school and forest property. This would require coordination with VTrans to navigate safe passage along and across US Route 14, Woodbury's most heavily trafficked road.

The town's principal paved road, US Route 14, is classified as a "minor arterial" by the VTrans. Minor arterials connect towns and allow movement throughout and between counties. Route 14 connects Woodbury to the Barre/Montpelier area further south, and to Hardwick and the Northeast Kingdom further north, and serves as a conduit for traffic between these areas.

The 2003 Woodbury town plan identified traffic volumes on Route 14 in Woodbury had grown approximately 25-30% since the mid-1980's and that the

road currently handles an average of about 2,700 vehicles a day. Based upon the Vermont Transportation Data Management System average traffic volumes have not increased as significantly and the trend flattened. Based upon local data from traffic counts, traffic has been increasing, especially the amount of construction trucks and tractor trailers, such as those hauling solid waste to the Coventry landfill. This type of traffic, along with increased traffic speeds, cause safety concerns, especially in the Center Village and along Sabin Pond / Woodbury Lake. Enforcement coupled with other traffic calming solutions would be beneficial.

A review of Vermont Public Crash Data indicate a low number of incidents. All crash reports involving motorized vehicles on all public highways are submitted to the State of Vermont and are available for query. Between 2010-2020 there were sixty crashes (one fatal); the locations and conditions varied such as speed, poor visibility, and winter weather. The data doesn't indicate a particular problem intersection or stretch of road.

The state highway classification system classifies town roads. The classification system serves as the basis by which the state allocates highway financial aid to municipalities. The classification system refers primarily to highway conditions. Within this classification system, Woodbury town highways are categorized as follows:

Road Class	Description	Condition	Miles
Class 1 State Highways (US RT14)	State-designated town highways that serve as extensions of state highway routes and carry a state highway number.	paved	7.691
Class 2 Highways (Cabot Road, Foster Hill Road)	Locally designated town highways that carry more than normal amounts of traffic and connect neighboring towns and are primarily the responsibility of the Town.	paved / gravel	5.05
Class 3 Highways	Other town highways that are maintained for year-round use by pleasure cars.	gravel	31.82
Class 4 Highways	All other town highways; minimal maintenance requirements. Class 4 Town highways include pent roads (public roads that may be gated by permission of the governing body). The Town's responsibility for these roads is limited to maintenance of	varied	24.75

	drainage structures (bridges and culverts) and, recently, erosion issues per the MRGP. Roads are maintained in the summer season, no winter maintenance is provided by the town.		
Legal Trails	Public right-of-ways which are not a highway and are designated through legal proceedings. Legal trails include previously designated highways and new public-rights-of-ways laid out as a trail by the Selectboard for the purpose of providing access to abutting properties for recreational use. Public right-of-ways are not highways; and there are no statutory maintenance requirements.	varied	1.2
Source: VT Agency of Transportation Town Highway Maps			

VTrans maintains an informational website titled vtransparency.vermont.gov which contains information about state highway road conditions, maintenance work, scheduled projects and other infrastructure conditions.

Route 14 north of Bailey Bridge Road was repaved in the early 2000's and its pavement condition is currently classified as "Fair" based upon VTrans' *Pavement Condition* portal. The stretch of Route 14 southward to Calais is classified as "Poor" or "Very Poor." No improvements or projects are planned in the next 3 years. US Route 14 is eligible for funding from the state for improvements. Improvements to the road need to be recommended by the Central Vermont Regional Planning Commission (CVRPC), Transportation Advisory Committee (TAC) in order to be considered by the Agency of Transportation. Woodbury is represented on the CVRPC board and does have representation on the TAC.

The Woodbury Highway Commissioner and Road Crew under the supervision of the Select Board are responsible for managing and maintaining the municipal road network. Creation of new access points (driveways) require municipal approval however new accesses and work within the Route 14 right-of-way does require VTrans approval. Maintenance of the local system requires the purchase, maintenance and storage of expensive vehicles, equipment and materials, along with a dedicated workforce. Seasonal wear and tear, challenging winter conditions, combined with increasing damage caused by heavy rain events and flooding make this a significant undertaking.

In response to statewide flood damages cause by tropical storm Irene in 2011, the State of Vermont is in the process of developing the Transportation Resiliency

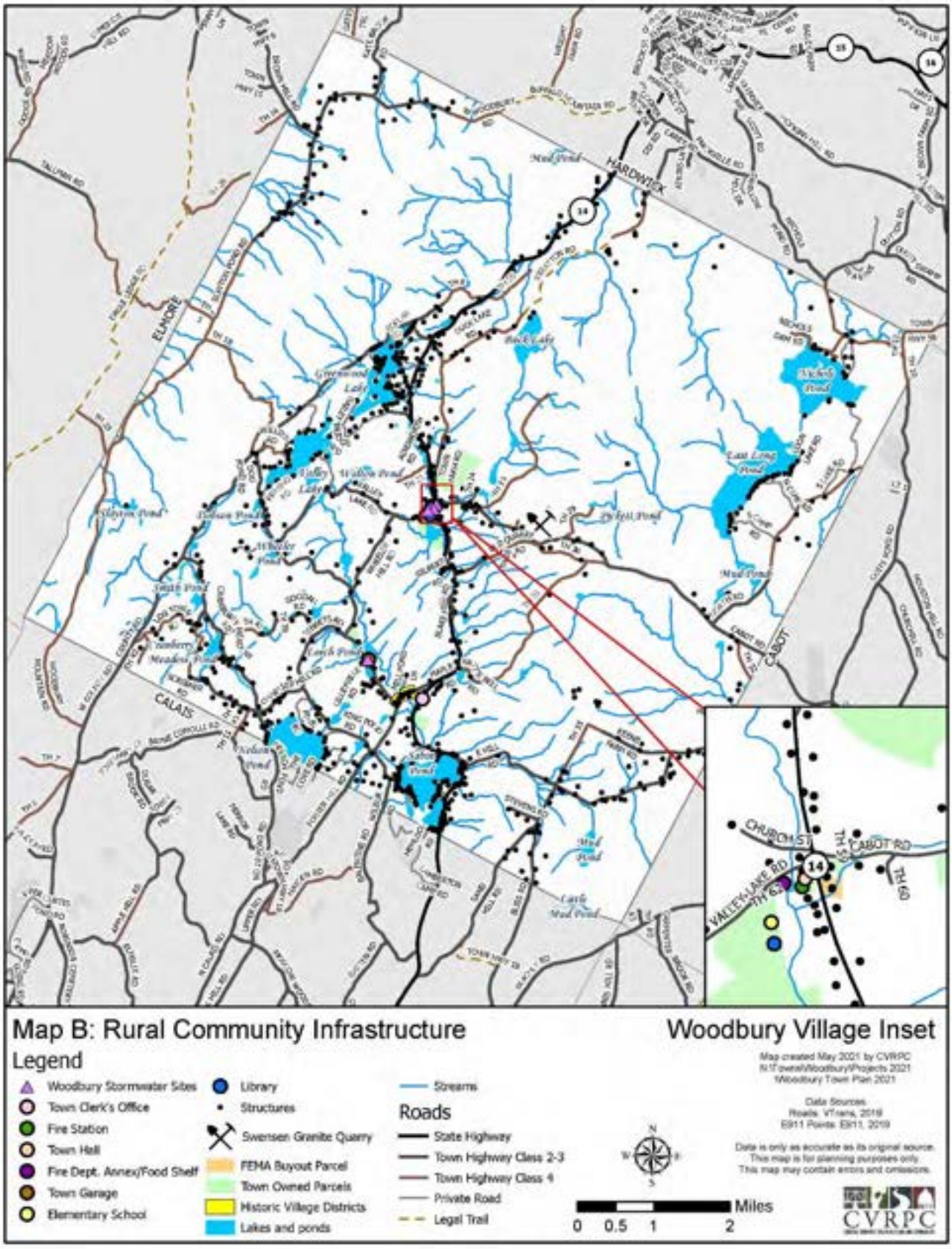
Planning Tool (TRPT). Utilizing a watershed-level, spatial analysis, this mapping tool will identify the flood-risk vulnerability of the road system caused by river processes and identify specific road segments, embankments, and structures susceptible to such risks. Once data for Woodbury is uploaded this will provide a resource toward building flood resilience in the transportation system.

To further hazard mitigation efforts and increased flood resilience, Woodbury adopted a Local Hazard Mitigation Plan (LHMP) in 2019. With this local plan in place the town is able to apply for certain federal programs to undertake eligible mitigation projects. Woodbury's LHMP identifies the town's current hazard controls and protective works; its top hazards; and list specific mitigation strategies and possible funding sources. The information contained with the LHMP is recognized to be a component of this town plan and is incorporated into this plan by reference.

Following a federally-declared disaster, such as flooding, municipalities may seek reimbursement to repair damages to public infrastructure from the State's Emergency Relief and Assistance Fund (ERAF). ERAF provides State funding to match Federal Public Assistance and eligible public costs are reimbursed at 75%. The State of Vermont will contribute an additional 7.5% toward the costs and for communities that take specific steps to reduce flood damage the State will contribute 12.5% or 17.5% of the total cost. Currently Woodbury is eligible for the 7.5% and with relative low effort could be eligible for 12.5% whereby lowering the town's financial responsibility.

Along with flood resilience, maintaining water quality is another consideration associated with the transportation system. Roadside erosion caused by stormwater runoff contributes to the conveyance of sediment and pollution into local waterways and beyond. With the passage of the Clean Water Act, municipalities now carry responsibility to lessen these impacts and adhere to the requirements of the States Municipal Road General Permit (MRGP). The MRGP's requirements include conducting an inventory of current road and culvert outfall conditions, and summarizing the findings. Having completed this Road Erosion Inventory in 2018, the Town will have until December 31, 2036 to implement upgrades to meet the MRGP standards. Managing the Permit requires additional local administrative capacity.

To aid local Road Crews, bridge and culverts are inventoried with assistance by the regional planning commission. The State maintains an online inventory at Vtculverts.org. This resource indicates that the two town bridges are in good condition and of the inventoried 423 culverts 37% are in good condition, 19% fair, 20% poor. Of the remainder, five are considered to be in "Critical" condition and the rest are classified as either "closed" or "unknown." This information can be updated each year and help direct local maintenance and repair efforts.


Map B: Rural Community Infrastructure
Woodbury Village Inset
Legend
Woodbury Stormwater Sites
Town Clerk's Office
Fire Station
Town Hall
Fire Dept. Annex/Food Shelf
Town Garage
Elementary School
Library
Structures
Swensen Granite Quarry
FEMA Buyout Parcel
Town Owned Parcels
Historic Village Districts
Lakes and ponds
Streams
Roads
State Highway
Town Highway Class 2-3
Town Highway Class 4
Private Road
Legal Trail
Miles
0 0.5 1 2
Map created May 2021 by CVRPC
N:\Towns\Woodbury\Projects 2021
Woodbury Town Plan 2021
Data Sources:
Roads: VTrans, 2019
E911 Points: E911, 2019
Data is only as accurate as its original source.
This map is for planning purposes only.
This map may contain errors and omissions.
CVRPC
HARDWICK
ELMORE
CALAIS
CABOT
CHURCH ST
CABOT RD
VALLEY LAKE RD
TH 63
TH 60

The town utilizes its Highway Equipment Reserve Fund, Town Highway budget, AOT grants, and Federal and State assistance funds to manage its transportation network. The active granite quarry contributes to the local highway maintenance fund based upon the amount of material extracted which is transported on local roads. The local road system is the town's greatest expense. To leverage state and federal funding opportunities and assist in the annual budget process, a town may schedule expensive capital projects over the course of several years to even out costs.

Transportation Goal: Maintain Woodbury's roads to a high standard for safety, efficiency and environmental integrity and ensure bicyclists and pedestrians are accommodated particularly in the Village Centers and the Route 14 corridor.

Local and Regional Services & Facilities

Municipal Services and Facilities

Local Government and Administration The town provides municipal administrative services to its residents. The Town Office building houses the Town Clerk, the Auditors, Listers, Treasurer, Zoning Administrator and municipal meeting rooms. The Town Office building was formerly a neighborhood schoolhouse and is principally staffed by the Town Clerk and Town Treasurer, who are elected officials and responsible for managing and maintaining the town's finances; archives, including those related to real estate and private property transactions; vital statistics and town business. A lift was added to the exterior of the building to ensure the building is accessible to all citizens and no major improvements are needed in the near future. The Town Office building's meeting room is small and since the COVID 19 pandemic is not able to accommodate the space needs for public meetings and larger groups.

The annual town report includes a listing of other municipal officials and their respective compensation. Many people involved in municipal operations serve as volunteers and public participation is valued and welcomed. In recent years some new volunteers have been willing to serve on local boards and committees, however more would be welcomed in recognition of adding diversity and contributing additional non-partisan perspective.

Municipal revenues are generated primarily through levy of taxes on property value. Other major sources are Federal and State payments to support the town school, aid (including grants) from the Vermont Agency of Transportation and the Agency of Natural Resources for highways, and payments in lieu of taxes for land owned by the State of Vermont. Woodbury also receives reimbursement, based

on a percentage of extraction, from the Swenson Quarry for highway maintenance. The municipality also has the authority to incur debt through bonding.

Public, Educational and Recreational Services and Facilities In addition to use by the town Select Board and other committees, the **Town Hall** is available to community and private groups for a variety of activities. The Woodbury Town Hall, which was built in 1842, is among the oldest in the State, and may be the oldest Town Hall in continuous use without major structural changes. The building has been added to the national register of historic places. The building has sanitary facilities and running water, which are accessible during functions at the Town Hall. A covenant in the deed requires that the building be used for Town purposes at least once a year, or ownership reverts to its original owner or their assigns. The Hall is used at least once a year for various Town business and related public forums, and continues to be used as a polling place. A wheelchair ramp has been installed on the side of the front steps to ensure accessibility. The building will need a new roof and since the COVID pandemic, there is interest to make the town hall into a regular meeting hall for monthly municipal board and committee meetings, as well as social gatherings. This would require upgrades as the building is currently available for 3-season use.

Woodbury Town Hall

The Town maintains five **cemeteries**: (1) The West Woodbury Cemetery on West Woodbury Road; (2) The North Cemetery on Buck Lake Road; (3) The Center Cemetery on Cabot Road (near the village); (4) The Harvey Cemetery on Cabot Road (near the Cabot town line); and (5) The South Woodbury Cemetery on Route 14 in the south village. Additional land was recently purchased to expand the South Woodbury Cemetery; this should be adequate for the foreseeable future.

Built in 1914, the Woodbury Graded **School** has been well maintained and is listed on the both the State and National Register of Historic Buildings. An elevator was installed in 1998, making the building's main floor and top floor handicapped accessible from the outside, but the basement offices and smaller classrooms in the basement level are not handicapped accessible. The town

leases the facility to the supervisory union for elementary school operations. The Friends of the Woodbury Elementary School is a non-profit group which supports educational opportunities and fosters ties between the school and the community. The town contributes funding to this group. The Elementary School currently has adequate classroom capacity, although as recently as 1990, overcrowding at the School necessitated building the one-room annex building. (Enrollment has fluctuated in recent decades from a high of 74 in 1997-98 to a low of 36 in 2011-12. Trends have evened out in recent years and enrollment is fairly stable with student numbers in the mid 50's.) It appears that the present space will be adequate for the next several years and recently the roof was re-shingled. The Woodbury Elementary School converted its heating system to a wood pellet system. It also underwent weatherization improvements that resulted in a higher-than-average energy efficiency rating. These improvements resulted in the school receiving an award for their achievement. The school and its educational and community contributions are a valued component of Woodbury.

The elementary school maintains a small gymnasium, a playground with varied apparatus and a vegetable garden with greenhouse. There is also a baseball field next to the elementary school on the school grounds. Woodbury has afterschool programs in basketball, soccer, skating and cross country skiing. In partnership with the Friends of the Woodbury Elementary School a community ice skating rink was created next to the school behind the Town Hall.

The Town **Library** was moved from the basement of the Town Office to a new addition to the school annex next to the Woodbury School. Today it functions as a Community Library, and also collaborates with the School in providing space and assistance for classes and after-school programs. It is overseen by a Board of Trustees and receives funding from the town. The facility functions much as a community center providing a range of programming and services. The library also serves as a handicapped accessible space for small public meetings.

Woodbury has a 65-acre **Town Forest**, which is located on Town Farm Road, near the village. The Town Forest was donated to the Town of Woodbury by the Hugo Meyer family in 1958 to be known as the "Harvey Drennan Town Forest." The intent of the gift was that the forest be held by the town as a timber forest with the income from the harvest of timber to be used for the benefit of the town. In 2018 the town participated in a collaborative project with Forest, Parks, and Recreation to develop a Recreation Plan for the forest. The plan also evaluated the Town Wetland Property which is located adjacent to the school property. The Recreation Plan identifies current conditions and lays out specific action steps for implementation. The Plan serves as a valuable resource for making these properties accessible for public enjoyment and to be used as an outdoor classroom for Elementary School children.

Despite the wealth of lakes and ponds in the town, there is no public swimming area for town residents. There has been ongoing discussion over several years about establishing a beach for public use. The 2000 town survey showed overwhelming support for a Town owned beach which was echoed in the 2020 Survey. Such a facility would be an outstanding resource for residents of all ages and collaboration with neighboring private property owners would be necessary to the process. (For additional information see; Outdoor Recreation section.)

Highway operations Woodbury manages and maintains the local highway system and owns a four-bay **highway garage** on a one-acre site on Dog Pond Road for equipment storage and maintenance. A Road Commissioner appointed by the Select Board and three full time truck driver/equipment operator(s) make up the road crew. The Town owns no gravel resources but has commercial sources available in Marshfield, Hardwick and Danville. Additional information about the transportation network is included in the Transportation section. The Town Garage site is currently not ideal for the current array of equipment and for storage of the winter sand supply.

Public Safety and Emergency Management The Town's fire coverage is provided by the Woodbury Volunteer Fire Department (WVFD), which is a member of Capital Fire Mutual Aid System. Woodbury provides fire protection services to the neighboring town of Calais. Hardwick Rescue provides ambulance service, and Woodbury First Response (part of the Woodbury Fire Department) provides additional medical care to Woodbury residents. Hardwick Rescue continues to provide CPR/AED and first aid classes for the community.

The fire station is located at 3665 Route 14 and an annex was built in 1992 to provide additional emergency response vehicle bays and storage space for the Department as well as for the First Response Team. Because of the numerous lakes and ponds in the area the Fire Department offers a well-trained water/ice rescue team with a rescue "air boat" which can be used on ice or water. Due to the complexities, increased hazards and expanding role in the modern era of emergency response, the Fire Department's needs have grown.

The Department has outgrown its current facilities and since 2014 the Department has been seeking to build a new fire station to meet its function needs. The 2015 Woodbury Community Planning Project recognized that a new/redeveloped fire station would be a significant community resource and summarized the basic needs and requirements for a new facility. In 2020 the fire department identified a location for a new facility but voters rejected a request to allow the fire department to issue a bond for $1,200,000 ($85,000 annually for 20 years.)

In 2018 WVFD responded to an increased number of building fires and at two of those buildings discovered the remains of two individuals who were victims of homicide. State police investigation reported the incident as a drug-related crime. The reality of the incident was summed up by the Woodbury Fire Chief in the 2018 town report in saying "I can't stress to you enough, that your fire rescue department is on the front lines of the opiate crisis." The WVFD is also faced with a low recruitment rate and are looking for new members. Fewer volunteers are expected to respond to increasingly challenging situations and conditions in the future.

The Fire Department currently has eight dry hydrants and the Woodbury Fire Chief has indicated that adding six more would better serve the town. In addition, a 10,000 gallon in-ground water storage tank located on the grounds of the Woodbury Elementary school serves as an alternative emergency water source. The department's ultimate goal is to place a sufficient number of dry hydrants at strategic locations to provide adequate fire control for the entire Town. When this is achieved, the Insurance Services Office (ISO) can then re-evaluate properties in Town, with the likelihood that insurance costs would be reduced due to reduced risk of damage from fire. The Department is also working through the ISO performance requirements, which will increase the likelihood of an upgrade in its ISO rating.

Ambulance services are provided by the Hardwick Emergency Rescue Squad and the Woodbury Fast Squad. The members of the Fast Squad are under the umbrella of Hardwick Rescue and, as such maintain on-call response status for medical emergencies in Woodbury as well as the whole of Hardwick Rescue's area of responsibility. They maintain their own equipment. The majority of their funds are raised from donations and volunteer activities. The State Police and Washington County Sheriff's Department provide public safety services to the Town. There is no emergency police service that provides a timely response to Woodbury and personnel for all policing departments in the area are currently understaffed.

The Elementary School serves as a Red Cross Emergency Shelter and a propane-powered generator was installed at the school in 1999. It is well maintained and capable of powering the school and the fire station in case of a major power outage. It has been used numerous times but most notably and extensively during tropical storm Irene in 2011. The town has recently been exploring the upgrade of this emergency generator.

Preparing for future hazards and mitigation to lessen the impacts is as important as response. As mentioned in the Natural Setting Chapter, the town recently received FEMA funds to buy out the old store and remove the building, as it caused obstruction to floodwaters. The next step in the process will be to further

reduce the potential of Village flooding by restoring the streambank. The Town's Local Hazard Mitigation Plan (LHMP) provides information on the town's current hazard controls and protective works; its top hazards; and list specific mitigation strategies. The information contained within the LHMP is recognized to be a component of this town plan and is incorporated into this plan by reference and implementation of its actions will help build resilience to identified hazards.

Public water supply, wastewater treatment and stormwater management

The majority of development in Woodbury relies on private water supply and onsite sewage disposal. There is no municipal water or wastewater system. There are three public water systems in Woodbury: one serves the church and the Town Office in South Woodbury Village; one serves the Post Office, Town Hall and the Fire Station in Woodbury Village; Woodbury Elementary School has its own system. A preliminary inventory contained within the 2015 Village Study identifies the following:

- A shared well serves the Fire Department, the Town Hall and the Post Office building. The former Woodbury Village Store has an off-site spring and is shared by a couple private residents.
- The Fire Department and Post office buildings have separate leach fields in the area behind the post office. The town hall has a holding tank. The tank has to be pumped annually, and capacity is sufficient.
- The Town Clerk's office, located in South Woodbury, has a drilled well and a leach field. The well is shared with the South Woodbury Congregational Church.
- The Woodbury Elementary School has an off-site spring and an on-site sewage disposal system. The spring is under a public water system operating permit and is monitored every day.

The report also recognized that "while the town would benefit from a community wastewater disposal system, local funding is a concern" and recommended the town identify public water supply/wastewater infrastructure improvements needed for future infill development, including potential limitations.

As identified in the Transportation section, storm water runoff has negative impacts to water quality. Due to increasing desires to mitigate the impacts coupled with increased water quality regulations, the town partnered with state and regional partners to undertake a storm water master planning process. The outcome was the identification of sites where **stormwater treatment** techniques could be installed that would provide the greatest water quality benefit and have a high likelihood of implementation. Four projects are currently in the final design phase. Upon completion, the town will be responsible for operation and maintenance of these sites, to ensure they continue to effectively manage stormwater run-off according to best management practices. It should be noted that implementation funds have not been identified to date.

Solid Waste Woodbury is a member of the Central Vermont Solid Waste Management District (CVSWMD). The District is responsible for the development and implementation of a solid waste plan that complies with the State solid waste plan. The District sets charges for haulers. Recyclables are hauled to a materials recovery facility and trash is taken to a district designated, lined landfill located elsewhere. Woodbury businesses and residents have the option of having their trash picked up "curbside." There are also solid waste transfer stations where one can bring household trash and recycling in Hardwick or East Montpelier. Collection of junk cars, littering and trash disposal costs have been identified as a community concern in the 2020 survey. Adoption of local ordinances and community programs could be instituted to address these concerns.

Health and Human Services Services for Woodbury's youth, seniors, disabled, sick and less fortunate are provided by the following regional agencies and entities: Washington County Youth Services Bureau, the Central Vermont Council on Aging, Retired Seniors Volunteers Program, Vermont Center for Independent Living, Central Vermont Home Health & Hospice, Battered Women's Services, Sexual Assault Crisis Team of Washington County, Inc., Aid to Women in Abuse and Rape Emergencies (Hardwick), The Shelter Committee, Inc., the Central Vermont Community Action Council, Washington County Mental Health Services, and Patch. Financial support for these organizations has been approved for many years at Woodbury's Town Meeting.

Woodbury residents are also served by the Copley Hospital and the Lamoille Home Health and Hospice in Morrisville, the Central Vermont Medical Center and Central Vermont Home Health & Hospicein Berlin, the Health Center in Hardwick and the Health Center in Plainfield. Support of public transit options as identified in the Transportation section will ensure continued access to basic essential services for all residents of Woodbury.

Municipal and Regional Facilities and Services Goal: Maintain town-owned facilities and provide for basic public services, which are cost-effective, hazard resilient, and efficient while seeking opportunities to make improvements.

Telecommunications & Broadband Connectivity

As a rural community with mountainous terrain broadband and mobile voice and data services are not broadly accessible to most residents in Woodbury. These services are in increasing demand for business, employment and education; interpersonal communication and entertainment; plus access to essential services such as telehealth and public safety. The Local Hazard Mitigation Plan (LHMP) identified lack of service as an obstacle in the public's ability to report

emergencies and the town's ability to more effectively coordinate response activities. Demand has been amplified by the recent pandemic.

There is currently one telecommunications tower in Woodbury, located on Robinson Mountain. The construction of such infrastructure to expand coverage can be controversial as recently experienced in neighboring Hardwick. The proposal to build on a prominent hillside was met by local opposition. Balancing these diverging needs of increased coverage with siting concerns are ultimately the responsibility of the Public Utility Commission but the town is granted party status in the proceeding. Variations in deployment strategies to increase coverage could be employed as specified in the State's just-issued draft 10-year Telecommunication Plan. Recommendations contained within identify a State-led process to investigate impact and viability to increasing coverage in underserved areas. During the development of the LHMP it was suggested a cell tower be installed on a church steeple or at the active quarry. To the greatest extent practicable, in order to reduce the impact on significant resources—including aesthetic, historic, economic, and ecological—any new telecommunications facility shall be collocated on or at an existing facility, building, structure, or developed site. can help lessen the environmental and visual impacts of new technologies.

In 2015, the Federal Communication Commission (FCC) set the current benchmark for broadband internet speed at 25 Megabits per second (Mbps) download, and 3 Mbps upload and is considered "high speed internet". Subsequently, the Vermont Public Utility Commissionadopted the FCC standard. A speed of 100/100 is considered "very high speed internet" and is the goal internet service providers are striving for. After a year of pandemic induced lockdowns, in order to support multiple family members at home with work, schoolwork, online meetings, telemedicine and gaming, the need for fast broadband speed is only going to grow even in a post-pandemic future.

A Broad Band Now 2021 study ranked Vermont 47th in the nation for the strength of its broadband systems ahead of only Nebraska, New Mexico, Montana, and Alaska. An additional study by Broad Band Now 2021 indicates 182,000 Vermonters do not have access to terrestrial broadband service.

Based upon 2019 data provided by the Vermont Department of Public Service, almost 90% of buildings in Woodbury have access to the internet, about 49% have access to high-speed internet and no buildings have access to very high internet access. Residences along the Route 14 corridor have access to high-speed internet. However, high-speed internet access remains dependent on the service provider and technical nuances based on the internet service offerings. Those residences outside of the Route 14 corridor utilize satellite or digital subscriber line (DSL) technologies for internet access. Internet access speed for

these service offerings typically are 4 Mbps download and 1 Mbps upload and fall well outside the FCC's "high-speed" internet benchmark. The town has three identified wi-fi hot spots - one at the Town Office on Route 14 and one at the Woodbury Elementary School, and one at the Woodbury Community Library. Additionally, the community library provides public internet access to internet, laptop computers, headsets, and printer.

The State has a goal to of providing 100/100 Mbps service everywhere in Vermont. The above referenced State plan also provides recommendations towards expanding high speed internet to rural communities, primarily through the formation of Communication Union Districts (CUDs.) Central Vermont Internet (CVFiber) is a Communication Union District representing twenty Central Vermont communities including Woodbury. CVFiber's mission is to ensure everyone in its member towns has access to internet speeds of at least 100 Mbps (megabits per second) for both uploading and downloading data. By bringing together densely populated neighborhoods with rural communities the CUD can leverage its combined membership to make infrastructure improvements economically feasible to a private contractor/provider.

Telecommunications & Broadband Connectivity Goal: Increase cell and broadband coverage for social, economic, educational and emergency service needs, in a manner consistent with the land conservation goals and policies stated in this plan

Energy

Energy is necessary to power homes and businesses and modes of transport. The majority of Woodbury households heat their homes with wood (58%) followed by propane (20%) and fuel oil (15%). The Hardwick Electric Department supplies electricity to most of the Town and Washington Electric Cooperative supplies some customers in the southeastern and northeastern portion of the town.

The 2016 Vermont Comprehensive Energy Plan (CEP) outlined ambitious goals to achieve 90% of Vermont total energy needs from renewable energy sources by 2050. The benefits of taking on this challenge will help combat the negative impacts of climate change, increase energy security, and reduce total energy cost while also improving the economy. Reaching this goal will require all entities in the State's energy network to aim for:

- Energy conservation & efficient use of energy;
- Reducing transportation demand and single occupancy vehicle trips, and encouraging the use of renewable sources for transportation;
- Promoting patterns and densities of land use likely to result in conservation of energy;
- Siting of new renewable energy generation.

Woodbury recognizes the validity of these strategies for the benefits they will provide for local residents and as such has developed a targeted energy plan to identify pathways toward implementing these strategies. Included as an attachment and incorporated into this plan by reference, Woodbury's Energy Plan serves to provide the town with greater standing during the State's permitting process for new energy generation facilities. Woodbury's Energy Plan, includes the following information:

- estimates current energy use across transportation, heating, and electric sectors
- establishes 2025, 2035, and 2050 targets for thermal and electric efficiency improvements, and use of renewable energy for transportation, heating, and electricity
- evaluates the amount of thermal-sector conservation, efficiency, and conversion to alternative heating fuels needed to achieve these targets
- evaluates transportation system changes and land use strategies needed to achieve these targets
- evaluates electric-sector conservation and efficiency needed to achieve these targets

The Plan recognizes that energy efficiency is commonly viewed as the most effective and lowest-cost option for reducing energy consumption for electricity, heat, and transportation. Energy efficiency and conservation efforts such as improved insulation and weatherization of new and existing structures; improvements in building design; and the use of high-efficiency vehicles often have a dramatic impact on reducing fuel consumption. It also notes that the town is significantly forested, and recognizes the importance of supporting the local logging businesses and regional economy and for that reason suggests an increased emphasis be given to encouraging new efficient Wood Heat Systems.

One component of reducing fossil fuel-based energy used in the transportation sector is to convert or replace older vehicles with alternative fuel vehicles such as electric or biodiesel and encourage local charging stations. Another consideration is to reduce the total number of vehicles overall. This can be done through the creation of compact development patterns, increased transit opportunities, or alternative transportation options such as carpooling, ridesharing and encouragement of bicycling or walking. Evaluation of additional objectives that promote a shift away from vehicle use rather than rely on the conversion of vehicles to renewable fuels may be worth pursuing.

➲ The Woodbury Enhanced Energy Plan and associated maps are incorporated into this plan by reference and can be found within the Appendix.

Advances in technology have improved solar efficiency and solar arrays are becoming more affordable. Woodbury has made great strides to incorporate solar energy into its energy portfolio. Several south-facing roofs and slopes provide the potential for even greater use of the technology, although some roofs may need to be retro-fitted to support solar panels. A majority of Woodbury residents are served by Hardwick Electric Department, HED, which has expressed the problem of grid constraints being able to handle solar electricity being fed onto the grid. As such, HED has imposed limits on how much solar the utility is willing to allow to connect to the grid through net-metering. This forced constraint greatly limits Woodbury's ability to achieve the State's 2050 renewable energy goals.

An analysis of existing land and renewable resource potential was undertaken to help determine the amount of local renewable energy that could be developed within the Town of Woodbury. There is adequate land area available for Woodbury to accommodate renewable energy generation that can meet the town's share of the region's renewable energy allocation. It should be noted, however, that not all renewable energy generation is appropriate at the same scale. Based upon mapped "Known" and "Possible" constraints, smaller-scale and residential scale renewable energy development rather than industrial-scale development, shall enable Woodbury to achieve its renewable energy goals while protecting its valuable lands, waters, and public resources.

Following the adoption of this plan, the next step in Woodbury's energy planning process will entail the identification of locally designated preferred sites, local constraints and/or unsuitable areas for renewable energy facility siting along with the establishment of additional clear and specific guidelines that can be used when evaluating proposed large-scale projects. It should be noted that the State has already identified the following as preferred sites: rooftops (and other structures), parking lots, previously developed sites, brownfields, and gravel pits/quarries. These sites will automatically be eligible for financial incentives to encourage development of new renewable energy facilities. At this time, if a renewable energy developer wishes to seek Preferred Site Designation for a property not in the State's list, the Woodbury Planning Commission, Selectboard and Regional Planning Commission must all submit a letter agreeing the alternative site is deemed preferred. Identifying local preferred sites or developing a set of criteria will provide the town with increased deference in the State's permit approval process.

Energy Goal: To increase energy efficiency and energy conservation while supporting the transition to renewable energy sources, in a manner consistent with the land conservation goals and policies stated in this plan.

Mapping out the Future

Woodbury's natural setting has and will continue to influence settlement patterns and land use. The high elevations and steep slopes of the Woodbury Range have limited development in the northwest quadrant of town. Decent agricultural soils in the south, southeast, and farthest northwest corner made establishment of farmsteads feasible.

The abundance of wetlands, lakes and ponds in central and south central Woodbury have attracted residents, even Woodbury's earliest inhabitants. South Woodbury Village was the first organized settlement characterized by a cluster of homes and small scale commerce and industry centered on water power. With the expansion of quarrying to the north, Woodbury Village eclipsed South Woodbury Village as the main hub of commerce and community life. Over time Woodbury has retained much of its rural character, however the vitality of villages has decreased and unplanned development has the potential to negatively impact those places and qualities which residents most value. Woodbury may attract more residents as high speed internet becomes universal and working from home becomes more common, making land use planning even more important.

Planning for economic development, housing needs, infrastructure, and environmental health are fundamental responsibilities of Vermont's municipalities. Woodbury recognizes that land use decisions are often personal and private matters for landowners; and sometimes public matters for developers, subject to the authority of the State, which may affect the larger community. The Town Plan acknowledges the importance of balancing the rights of landowners and developers with the protection of public resources valued by the Woodbury community. Together the following Future Land Use Plan and Implementation Program proposes a pathway to achieve the plan's vision and stated goals.

Current Land Use and Existing Zoning Regulations

Zoning was first adopted in Woodbury in 1973, in response to concerns with an influx of hippies building camps and cabins in the woods. The ordinance was revised in 1982 and again in 1989 with a minor amendment in 2006. Land use regulations (otherwise known as Zoning and Subdivision Regulations) are considered to be a regulatory tool to aid in the effective implementation of the town plan. Towns may also identify non-regulatory strategies to help accomplish the town's goals. Towns are only enabled to adopt, update or amend local zoning regulations if the town has an effective, locally adopted town plan in place.

Permits are required for land development, defined to include subdivision, construction, re-construction, conversion, structural alteration, relocation or enlargement of any building, mining, excavation or landfill, and any change in the use of any building, structure, or land.

Three zoning districts are designated – Shoreland District; Village District; and Agriculture-Rural Residential District. The Shoreland District surrounds lakes and ponds larger than 20 acres, and covers an area 800 feet deep from the shoreline. The minimum size for a new lot is one acre. Permitted uses are single-family residences and limited types of compatible commercial uses.

There are two Village Zoning Districts: South Woodbury and Woodbury Village. Minimum size for a new lot is one acre. Residential, public buildings and commercial uses are allowed, some needing conditional use review and permitting. The majority of the town is currently classified as "Agriculture – Rural Residential" Minimum size for a new lot is 3 acres, and only residential uses and home occupations are allowed. Commercial uses other than home occupations are not allowed. Required setbacks are the same for all districts – 100 feet from any shoreline, stream or wetland, and 25 feet from side or rear property lines. Road center line setbacks are 65' from town highways, 25 feet from private roads, and 75' from Route 14.

In the last eight years, an average of 31 permits were issued each year, with two or three permits for new dwellings in most years. Sheds, decks, porches and garages constitute the bulk of new construction. With very few exceptions, permits are granted and complied with. Voluntary compliance cures most violations. It is seldom that zoning results in enforcement challenges, and those are often caused by neighbor disputes, rather than land development concerns. Zoning is generally accepted as a way to insure that landowners are treated fairly and their property values can be preserved by preventing unsavory or unlawful land uses by others.

An update to this ordinance is warranted once this plan is adopted, to bring it into compliance with state regulations and to allow the town to continue to develop in a manner that respects the environment as well as property values.

Future Land Use

Identifying future land use districts communicates important components of Woodbury's vision for investment and preservation. The following land use districts do not necessarily reflect current uses of land but rather the uses desired within the planning time frame. It is a prescription for future growth and a guide for managing land use change.

The Future Land Use Districts are not zoning districts, but do establish the legal basis for the adoption or amendment of a zoning map and related regulations. It does not entitle property owners with additional rights nor does it take any property rights away. The land use classifications are intended to be broad and conceptual, reflecting only general land uses. The town plan establishes the rationale and intent to guide subsequent zoning amendments which may be necessary to achieve the presented vision and goals and it may result in the need to adopt multiple zoning districts within each land use category to address the more site-specific conditions.

Future Land Use Districts

Center Village District Primary purpose of the District is to encourage a mix of uses which maintain and preserve the integrity of the historic settlement pattern. The District is characterized by a high concentration of historic buildings and public uses all within a walkable distance. Principal uses and activities will include a mix of residential, home occupations, small scale commercial, community and civic uses. Village Center Designation will be sought to help direct historic preservation and community development efforts. Municipal infrastructure investments will be prioritized for the Village along with increasing bicycle and pedestrian amenities and streetscape improvements. The District will have a highest allowable density compared to the rest of the town.

South Village District Primary purpose of the District is to encourage a mix of uses which maintain and preserve the integrity of the historic settlement pattern. The District is characterized by a high concentration of historic buildings. Principal uses and activities will include a mix of residential, smaller scale-commercial (compared to Woodbury Village), community and civic uses all within a walkable distance. Village Center Designation will be sought to help direct historic preservation and community development efforts. The District will have a lower allowable density compared to Woodbury Village.

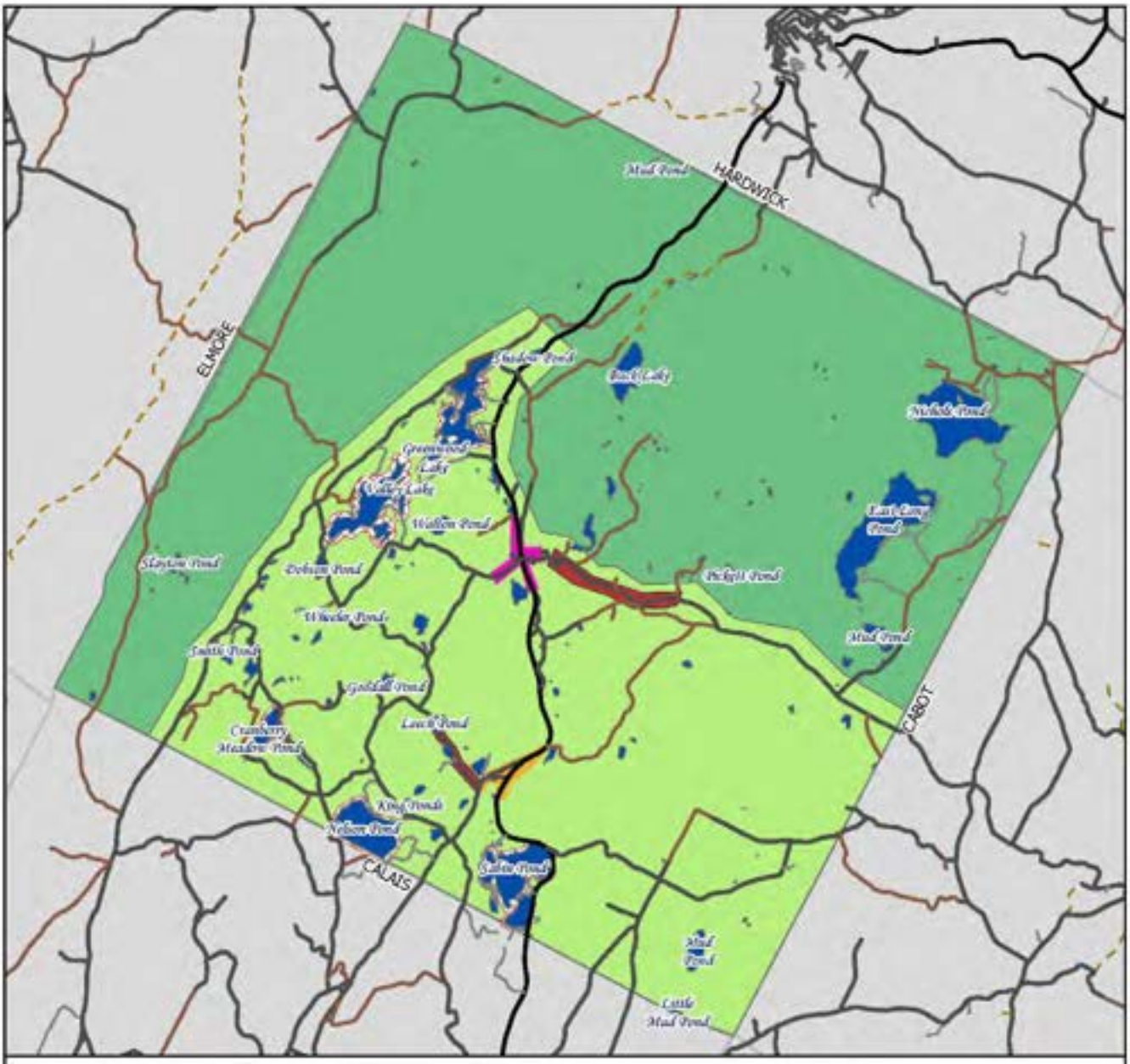
Lakeshore Residential District Primary purpose of the district is to protect water quality and enhance the quality of shorelines on lakes 10 acres and greater. The District is characterized by a high concentration of lake-side residential properties. Principal uses and activities will include residential development and home occupations. The District will have a high to medium allowable density, compared to the rest of the town.

Village Neighborhood Primary purpose of the district is to encourage a diversity of housing choices to promote neighborhood style housing which could include clustered housing and different types of housing for seniors that are in proximity to the Village Centers. The District is a transitional zone between the historic commercial centers and the rural areas. Principal use and activities will include residential development and home occupations.

Survey Responses:
47% of respondents were in favor of the development of a "conservation reserve zone" for areas of Woodbury with larger parcels, and provided input focusing on northern sections of town.
50% of respondents believe some open space should be conserved for future agricultural use.
74% of respondents were in favor of preserving scenic, historic, or natural areas in Woodbury.

Agriculture District Primary purpose of the district is to encourage agriculture, forest-based operations and low density residential development. The District is characterized by large tracts of historic agricultural working lands. Principal uses and activities will include land-based operations, residential development, home occupations and small scale commercial enterprise. The District will have a medium allowable density, compared to the rest of the town.

Forest District Primary purpose of the District is to maintain priority forest blocks, wildlife connectivity and preserve undeveloped ridgelines over 2,000ft. The District is characterized by large un-fragmented forests and woodlands. Principal uses and activities will include land-based operations such as forestry, agriculture and resource extraction. Limited clustered residential uses will be allowed along with home occupations. The District will have the lowest allowable density, compared to the rest of the town, and land conservation and outdoor recreation uses will be highly encouraged.



Future Land Use

Map created December 2021 by CVRPC
N:\Towns\Woodbury\Projects 2021
Woodbury Town Plan 2021

Data Sources:
Roads: VTrans, 2019
Woodbury Land Use Land Cover Data
Town of Woodbury and CVRPC 2021

Data is only as accurate as its original source.
This map is for planning purposes only.
This map may contain errors and omissions.

Legend

Woodbury Land Use Land Cover Data

- Forest District
- Agriculture District
- Center Village District
- South Village District
- Village District
- Lakeshore District
- Streams

Roads

- State Highway
- Town Highway Class 2-3
- Town Highway Class 4
- Private Road
- Legal Trail
- Lakes and ponds
- Town Boundaries

N W E S

CVRPC

Implementation Program

These goals, objectives, and actions contained below make up the implementation program for Woodbury's Town Plan. The actions contained within are to be initiated by the Town. However the successful implementation of the goals, depend on the combined efforts of Town residents, property owners and local officials, as well as the resources of the Central Vermont Regional Planning Commission (CVRPC), and other regional, state, federal and private entities involved in land use planning activities.

- Goals: State a clear purpose and destination, and articulate an overarching principle that guides decision-making, they are intended to be both challenging and attainable.
- Objectives: Provide targets for the accomplishment of goals. They should be specific enough that the Municipality can determine when the objectives have been met.
- Action: The next steps needed to move toward the objectives. These are concrete activities that can be described in specific terms.
- Responsible Party: The lead municipal board responsible for undertaking the identified Action.
- Time Frame: Identifies the timeframe in which to accomplish the Action:
    - ST: Short Term:1-4 Years
    - MT: Midterm: 5-8 Years;
    - OG: Ongoing: Indefinite
- Possible Partners: Lists local, regional and/or State entities who can assist Responsible Party in undertaking the Action

Responsible Party Acronyms:
PC: Planning Commission
CC: Conservation Commission:
ZA: Zoning Administrator
FWES: Friends of the Woodbury Elementary School
OSUESD: Orleans Southwest Union Elementary School District
ANR: Vermont Agency of Natural Resources
DHCD: Vermont Department of Housing and Community Development
DEC: Vermont Department of Environmental Conservation
FW: Vermont Department of Fish and Wildlife
FPR: Vermont Department of Forests, Parks, and Recreation
DHP: Vermont Division for Historic Preservation

Natural Setting

Natural Features and Ecological Systems Goal: Protect and conserve Woodbury's forests, lakes, ponds, and wetlands to maintain and improve ecological functions.

Objective	Action	Responsible Party	Time frame	Possible partners
A. Maintain and improve ecological integrity of Highest Priority Interior forest blocks and the habitat connectors between them by minimizing fragmentation and improving management.	i. Include measures in revised Zoning Ordinance to protect forest blocks and habitat connectors from fragmentation and degradation which may include standards that limit direct development at the edge of identified blocks, limit allowable driveway and road length and include provisions for forest management and silvicultural access.	PC; CC; ZA	ST Initially; OG	FW; FPR; Land Trusts;
	ii. Educate forest owners and other town residents about the ecological importance of forest blocks and habitat connectors and encourage maintenance of these resources.	CC	ST Initially; OG	FW; FPR; Land Trusts
B. Maintain and improve, water quality and protect shorelines of lakes, ponds, and brooks.	iii. Educate lakeshore landowners about State Shoreline Protection Act provisions and encourage compliance.	PC; ZA	ST	ANR; CVRPC;
	iv. Include provisions in the revised Zoning Ordinance to protect shorelines.	PC; ZA	ST	ANR; ZA; Lake Assoc; CVRPC
	v. Ensure that each of the following lakes have volunteer water quality monitors and invasive aquatic weed patrollers: Woodbury; Greenwood; Nelson; East Long; Nichols; Valley; and Buck.	PC; CC	OG	DEC Lakes and Ponds Program-; Lake Assoc
	vi. Apply for a grant to fund Lake Watershed Action Plans and Lake Wise Program projects for	PC; CC	ST	Greenwood & Woodbury Lake Assoc

		Greenwood and Woodbury Lake and other lakes as needed.			
C. Protect wetlands, floodplains and riparian areas and rare habitat from disturbance.	vii.	Include protection of these areas in the revised Zoning Ordinance	SB; PC; CC; ZA	OG	ANR DEC
Working Lands Goal: Strengthen and promote the long-term viability of working lands that are committed to sound management practices and contribute to the local economy.					
Objective	**Action**		**Responsible Party**	**Time frame**	**Possible partners**
D. Support and protect agriculture and forestry based businesses and activities.	i.	Partner with property owners who seek to preserve or conserve agricultural or forestlands.	PC; CC	OG	Land Owners; Forestry Businesses; Tree Warden; County Forester; FPR; Farmers
	ii.	Ensure revised Zoning Ordinance does not present any barriers to operations that comply with State regulations.	PC; ZA	OG	CVRPC; VLCT
E. Support the siting, expansion, operation and reclamation of resource extraction activities that minimizes adverse impact to neighbor properties and municipal infrastructure.	iii.	Include provisions in the revised Zoning Ordinance which provide clear guidance in the local permitting process.	PC; ZA	ST	CVRPC; VLCT
	iv.	Maintain communication with the active quarry operators to learn about operational changes.	SB; PC	OG	ANR/Act 250; Swenson Quarry Personnel

Scenic Areas Goal: Protect and maintain significant scenic areas and views.				
Objective	**Action**	**Responsible Party**	**Time frame**	**Possible partners**
F. Identify and designate significant scenic areas and views and prioritize their protection.	v. Undertake a scenic resources inventory and map for Woodbury and identify specific strategies for protection.	PC	ST	ANR; CVRPC
Outdoor Recreation Goal: Increase recreational opportunities afforded by Woodbury's natural setting for residents and non-residents.				
Objective	Action	Responsible Party	Time frame	Possible partners
G. Establish town beach on one of the lakes to provide a public swimming area.	vi. Form a committee and undertake a feasibility study to recommend possible sites and funding sources.	SB; PC	OG	Lake Assoc
	vii. Determine feasibility for residents to use Buck Lake beach when the Conservation Camp is not in session.	SB; PC	OG	FW; State Reps & Senators
H. Expand hiking, biking, skiing, snowshoeing and off road motorsport opportunities on public and private lands.	viii. Prepare a public recreation map for Woodbury and include bicycle touring routes on Woodbury's back roads and identify Class 3 Roads with points of interest.	PC; CC	ST	VAST; CVRPC; Trail Advocacy Group; FPR
	ix. Form a committee to recommend possible sites for a winter trail system in town for hiking, snowshoeing, x-country skiing, snow mobiling (Example: Hardwick Trails) and to expand the trail system including on private land (such as a Trans-Woodbury Trail) and seek owner permission.	PC; CC	ST	VAST; CVRPC; Trail Advocacy Group; FPR

	x.	Form a committee to ensure access to Class 4 roads and trails on public and private lands for off road motorsports.			VASA; VAST; CVRPC; Trail Advocacy Group; FPR
I. Maintain and improve town recreation facilities including the town forest, baseball field at school, and ice rink.	xi.	Complete trail in the Town Forest and implement the Action plan contained within the Woodbury Town Forest Recreation Plan.	SB; CC; FWES	ST, MT and OG	OSUESD
	xii.	Establish outdoor classroom shelter at the Woodbury Elementary School and Assist in the installation and funding of a teaching platform in the school wetlands.	SB; CC; FWES	ST	OSUESD
	xiii.	Enhance the public skating rink by installing a roof over the ice surface.	SB; FWES	MT	OSUESD

Sense of Community

Historic and Cultural Resources Goal: Protect and preserve important historic and cultural resources and make information about these resources available.

Objective	Action	Responsible Party	Time frame	Possible partners
A. Make current listing of historic resources available to aid in local protection efforts.	i. Update State's Historic Sites and Structures Survey.	PC	ST	Woodbury Historical Society; CVRPC; VDHP
	ii. Raise awareness and interest of historic resources by the listing of historic resources available on the town website; hold public educational events, such as talks and tours.	PC	ST	Community Library Talks; WEB Master; Woodbury Historical Society; VDHP

B. Incentivize the preservation of historic resources.	iii. Apply for Village Center Designation for the villages to make financial and technical assistance available to historic, commercial and public buildings, including the school and town hall.	PC	ST	DHCD; CVRPC
C. Permanently preserve documents of the Historical Society's collection.	iv. Apply for grant to digitize historical documents and photos.	SB; Historical Society	MT	VDHP; VT Secretary of State; VT Folklore Society
Housing Goal: Increase the diversity of housing options to meet the needs of a wide range of income levels and preferences.				
Objective	**Action**	**Responsible Party**	**Time frame**	**Possible partners**
D. Increase awareness and understanding of housing needs for Woodbury residents.	v. Undertake a detailed housing needs assessment to define specific housing gaps, starting with a public survey	PC	OG	CVRPC; Census Bureau; Listers
	vi. Research Vermont housing assistance organizations and develop partnerships with housing development organizations.	PC	OG	Downstreet Housing; Lamoille Housing Partnership
E. Incentivize housing development to fill market gaps, especially for lower income residents.	vii. Include provision in the revised Zoning Ordinance to allow for multi-unit dwellings to be built or created in existing structures, in the villages and other areas as allowed by the revised Zoning Ordinance	PC; ZA; SB	OG	CVRPC; VLCT
	viii. Revise Zoning Ordinance and eliminate any legal barriers to accessory structures.	PC; ZA	OG	ZBA; VLCT; CVRPC
	ix. Inventory buildings and sites that are located in proximity to the village areas that may be repurposed for multi-unit or elderly housing.	PC	MT	Historical Society

Local Economy Goal: Support the viability of local businesses, and increase access to employment, training and educational opportunities in Woodbury by encouraging provision of services.				
Objective	**Action**	**Responsible Party**	**Timeframe**	**Possible partners**
F. Make high speed internet connections available to all Woodbury homes and businesses to fulfill a basic requirement of modern life, commerce, and educational access.	x. Continue support of and maintain a town representative on the regional Consolidated Union District-CV Fiber or other contractor(s) in the deployment of high-speed broadband connectivity.	SB; PC	ST & MT	CV Fiber; Hardwick Electric Department; CVRPC; Vermont Community Broadband Board
G. Encourage and support home-based businesses and workers and students and reduced commuting by existing residents.	xi. Allow for the creation of a public workspace in a town-owned building with high-speed internet connections for remote workers and students to use during the day.	SB; PC	ST	CV Fiber; OSEUSD; Woodbury Library Trustees
	xii. Facilitate the formation of a group of home business owners and workers to provide networking opportunities for mutual support.	PC; local business owners	ST & OG	CVEDC; CVCOC
	xiii. Ensure a provision in the revised Zoning Ordinance allow for home-based businesses.	PC; ZA	ST	CVEDC; VLCT; CVRPC
H. Facilitate the creation of a childcare facility in town.	xiv. Make space available in a town owned building for a daycare center.	SB	ST	OSUESD
	xv. Support parents to form a group to formulate a plan to address childcare needs.	SB	ST	Parents; FWES

	xvi.	Apply for a grant to start a daycare center.	SB	ST	Department of Children and Families
I. Develop a targeted Economic Development Strategy for Woodbury to identify opportunities for new and expanded businesses and consider coordinated marketing and promotional initiatives.	xvii.	Seek funding to hire a consultant to lead the development of the Economic Development Strategy which identifies short and long-term strategies and engage the community to get ideas.	PC	ST	CVRPC; ACCD; CVCOC; CVEDC
Community Development Goal: Increase the vitality of our village centers, South Woodbury and Woodbury Village, to benefit the existing community and attract new residents.					
Objective	**Action**		**Responsible Party**	**Time frame**	**Possible partners**
J. Incentivize historic preservation and economic development in the Village centers.	xviii.	Apply for Village Center Designation for Woodbury Village and South Woodbury Village, which makes financial and technical assistance available for historic preservation and economic development.	SB; PC; ZA	ST	CVRPC; DHCD
K. Allow for new small scale commercial activity and mixed uses in Village areas which is compatible with the existing character and respects ecologically sensitive areas.	xix.	Include provision in the revised Zoning Ordinance to provide for utilization of open space or existing structures (infill) based upon recommendations with the Woodbury Village Planning Study and consider similar provisions for South Woodbury.	SB; PC; ZA	ST	CVRPC; ACCD; League of Cities and Towns

L. Make necessary improvements to water and sewer infrastructure in Woodbury Village to accommodate increased public usage of the town hall and establishment of new businesses such as a store, café or restaurant.	xx.	Seek grant funds to conduct a detailed study to identify future water supply and wastewater options and related implementation budget based upon the recommendations from the Woodbury Village Planning Study.	SB; PC	ST	VTrans; CVRPC; ANR
M. Facilitate the creation and use of public and/or commercial gathering places.	xxi.	Create or use the existing green space(s) in the Village to host events such as a farmer's market, community events and picnicking.	SB; PC	OG	Local Farmers; Historical Society; Local Citizen Groups.
	xxii.	Create a committee to lead this effort and seek funding to support/encourage the opening of a store or café.	SB; PC; ZA	OG	Washington County Chamber of Commerce
	xxiii.	Maintain public meeting places in town owned buildings that are open at regular times and for special community events.	SB	OG	OSUESD; Town Clerk; Special Events Organizers

Rural Services and Infrastructure

Transportation Goal: Maintain all Woodbury's roads to high standard for safety, efficiency and environmental integrity and ensure bicyclists' and pedestrians' safety are accounted for, particularly in the Village Centers and the Route 14 corridor.

Objective	Action	Responsible Party	Time frame	Possible partners
A. Maintain and improve the safety of the road system.	i. Analyze locally collected road traffic data and more detailed VTrans and CVRPC data to identify areas of specific concern.	PC	OG	CVRPC, VTrans
B. Maintain and improve the town road system for increased water quality and flood resilience	ii. Continue to participate in the Municipal General Roads Permit (MGRP) program to ensure road system improvements.	SB; Road Commissioner	ST & OG	VTrans; Better Roads Program; Municipal General Roads Permit Program; CVRPC
	iii. Implement the transportation related mitigation actions identified in the Local Hazard Mitigation Plan.	SB; PC; Road Commissioner	OG	CVRPC; DHCD; VTrans
C. Establish bicycle and pedestrian facilities in the Village Centers and connecting to other prominent locations in town (e.g. South Woodbury, town forest, Woodbury Lake / Sabin Pond)	iv. Seek grant funds to undertake a scoping study to further streetscaping recommendations presented in the Woodbury Village Planning Study and include considerations for Restriping RT 14 with bike lanes, incorporation of informational kiosk and other bike and pedestrian infrastructure.	SB; ; Road Commissioner	ST & OG	VTrans; Bicycle Groups; CVRPC, Local Motion
D. Ensure public transit options are available to Woodbury residents:	v. Incorporate the following related actions from the Energy Plan:	SB; PC	ST & OG	RCT; VTrans; Green Mountain Transit

	1. Identify challenges and opportunities for small-scale transit in Woodbury. 2. Explore alternative public transportation that Woodbury may be able to take advantage of beyond the current service from Rural Community Transportation. 3. Identify possible locations for a formal park-and-ride lot in Woodbury.			
Municipal and Regional Facilities and Services Goal: Maintain town-owned facilities and provide for basic public services, which are cost-effective, hazard resilient, and efficient while seeking opportunities to make improvements.				
Objective	**Action**	**Responsible Party**	**Time frame**	**Possible partners**
E. Plan municipal investments and expenditures that limit budget and tax rate fluctuations.	vi. Sustain annual funding to the Town Building Fund and develop a Capital Improvement Program to identify large expenditures, possible sources of revenue that spreads out costs over 5 to 10 years.	SB	OG	VLCT; CVRPC
F. Maintain and improve town-owned buildings.	vii. Apply for funds to upgrade the town hall for year-round occupancy.	SB	OG	ACCD; VCDP; Efficiency Vermont
	viii. Perform energy audits on all town owned buildings and plan for recommended upgrades and improvements.	SB	ST	Efficiency Vermont; Ad Hoc Committee

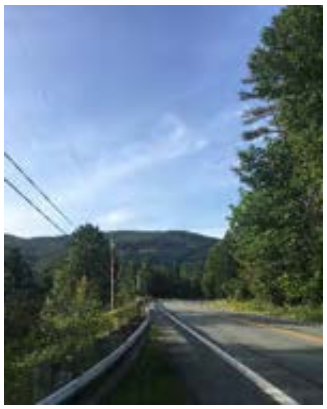
	ix.	Identify necessary long-term improvements to the Town Garage.	SB	ST	Efficiency Vermont ; ACCD (VCDP); Ad Hoc Committee
G. Manage storm water mitigation systems in locations deemed feasible.	x.	Implement the recommendations of the Stormwater Management Plan.	PC; SB; Road Commissioner	OG	CVRPC; ANR; VTrans
H. Continue to provide public safety and emergency services.	xi.	Continue funding the operations of the Woodbury Volunteer Fire Department for fire protection and its local initial medical emergency response team (FAST team) and Hardwick Rescue for emergency medical response by trained local volunteers using well-maintained equipment.	SB	OG	Hardwick Rescue; Woodbury Volunteer Fire Department
	xii.	Provide police protection on a contractual basis.	SB	OG	Various law enforcement agencies
	xiii.	Maintain the Local Hazard Mitigation Plan (LHMP) and implement the Actions.	SB		
I. Collaborate with the OSUESD to keep Woodbury School functioning as a school and community hub.	xiv.	Encourage community involvement with and support of the school through Friends of the Woodbury Elementary School.	SB; PC; CC	OG	OSUESD; Woodbury School Board Rep.
	xv.	Support strengthening the natural science curriculum and outdoor education program to increase the educational value and viability of the school.	CC; School Principal	OG	FWES; FW; Four Winds Nature Institute; North Branch Nature Center

J. Maintain the Woodbury Community Library as an important community resource.	xvi.	Support the library trustees to develop and implement a new long-range plan for the library.	SB	OG	Vermont Department of Libraries
K. Work collaboratively with property owners to ensure appropriate management and disposal of unregistered and unlicensed vehicles and roadside dumping.	xvii.	Evaluate adoption of a "Junk" Ordinance or a Zoning enforcement provision to manage collection of unregistered and unlicensed vehicles and other materials deemed as "junk".	SB; PC; ZA; ZBA	OG	VLCT; ANR; DEC Enforcement Division
	xviii.	Seek volunteers to participate in Local Green-Up Day activities.	CC	OG	Road Commissioner; Green UP Vermont.org.; FWES
L. Support regional health and human service providers that provide critical services to Woodbury residents.	xix.	Approve annual contributions to organizations based upon request.	SB	OG	Woodbury voters
Telecommunications and Broadband Connectivity Goal: Increase cell and broadband coverage for social, economic, educational and emergency service needs in a manner consistent with the land conservation goals and policies stated in this plan.					
Objective	**Action**		**Responsible Party**	**Time frame**	**Possible partners**
M. Make high speed internet connections available to all Woodbury homes and businesses to fulfill a basic requirement of modern life, commerce, and educational access.	xx.	Maintain a town representative on the regional Consolidated Union District (CUD)- CV Fiber.	SB; PC	ST & MT	CV Fiber; Hardwick Electric Department; CVRPC; Vermont Community Broadband Board
	xxi.	Advertise WiFi hot spots.	SB	OG	Comcast; CV Fiber

N. Collocate new or expanded wireless telecommunication at sites and locations which limit or lessen the environmental or aesthetic impacts on the natural setting.	xxii.	Create a scenic resources map for Woodbury and identify specific strategies for protection.	PC; CC	ST & OG	CVRPC
	xxiii.	Work collaboratively with telecommunication developers to identify suitable locations.	PC; CC	ST & OG	CVRPC; SB
Energy Goal: To increase energy efficiency and energy conservation while supporting the transition to renewable energy sources, in a manner consistent with the land conservation goals and policies stated in this plan.					
Objective	**Action**		**Responsible Party**	**Time frame**	**Possible partners**
O. Implement the Objectives of the Woodbury Enhanced Energy Plan.	xxiv.	Undertake the Actions specified in the plan.	SB; PC	ST & OG	CVRPC; Efficiency Vermont; DPS
P. Based upon additional extensive public input determine if the Town should include more defined and specific parameters to guide the siting of larger scale renewable energy generation facilities.	xxv.	Consider upgrading Highest Priority Forest Blocks from a "Possible Constraint" to a locally identified "Known" Constraint based upon definitions included in the Enhanced Energy Plan.	CC; PC	ST & OG	FW
	xxvi.	Identify any additional local sites that should be added to the list of State Identified Preferred Sites based upon definitions included in the Enhanced Energy Plan.	CC; PC; ZA	ST & OG	ANR-Energy Generation Siting Policy Commission
	xxvii.	Evaluate the benefits of establishing additional clear and specific guidelines that can be used when evaluating proposed large-scale projects.	CC; PC	ST & OG	ANR-Energy Generation Siting Policy Commission

Appendix:

Woodbury Enhanced Energy Plan




Enhanced Energy Plan
Woodbury, VT

December 10, 2021

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Executive Summary & Introduction

With the passage of Act 174 in 2016, Towns have been allowed a higher level of deference in the Section 248 proceedings if they meet specific planning standards, which would allow Woodbury an opportunity to reexamine the actions its community is taking to meet its energy goals.

Through Act 174, three primary planning areas are identified and need to be met satisfactorily for successful compliance. These sections include Analysis & Targets; Pathways & Implementation Actions; and Mapping. All three sections include an evaluation of energy sectors that include thermal (heating), electrical, and transportation.

Section I: Analysis & Targets

This section provides a baseline of information for where a municipality currently stands in terms of energy and identifies the trajectories and pace of change needed to meet targeted reductions and conservation of energy. It includes information on current electricity use for residential and non-residential uses; existing and potential renewable resource generation; and current transportation energy use information. Additionally, targets are established to provide milestones for thermal efficiency, renewable energy use, and conversion of thermal and transportation energy from fossil fuels to renewable resources. These milestones are intended to help the municipality measure progress towards the overall goals and are not identified as requirements. Targets are established for the years 2025, 2035, and 2050 which coincide with the State Comprehensive Energy Plan.

Specific information in this section notes that Woodbury currently uses approximately 5,589 megawatt hours of electricity on an annual basis across the identified sectors. By comparison, Woodbury's share of new renewable energy generation needed to meet the state's goal is approximately 5,831 megawatt hours. Based on the mapping and resource data (Section III), Woodbury has resources available to generate approximately 4,276,321 megawatt hours of energy.

Other analysis includes 2050 targets for fuel switching of vehicles from fossil based to alternative power, and conversion or installation of high efficiency heating systems for residential and commercial structures. Specific targets for Woodbury include over 1,200 alternative powered vehicles and approximately 212 heating system changeovers. The specific 2050 targets for transportation and heating renewable use in Woodbury are 90.2% and 93.1% respectively. It's important to note that the targets for alternative powered vehicles listed in Section One are based on maintaining current land use and transportation policies. Transit, ride sharing, telecommuting, or similar policies may be prioritized by the Town which would impact these targets and reduce dependency on individual vehicle needs.

Section II: Pathways & Implementation Actions

Section II provides the basis for how Woodbury will meet their target year goals as noted in Section I. The implementation actions are categorized by:

1. Conservation & efficient use of energy
2. Reducing transportation demand and single occupancy vehicles trips, and encouraging the use of renewable sources for transportation
3. Patterns and densities of land use likely to result in conservation of energy
4. The siting of renewable energy generation

The implementation actions that are identified in this section focus primarily on areas where the Town of Woodbury is already working to support its residents and businesses through local land use, transportation, and environmental planning activities.

To this end, the current Woodbury Town Plan was first reviewed and implementation actions that pertained to any of the above-mentioned sections were noted. These implementation items were carried forward for inclusion in the energy plan to establish consistency with the two documents. To ensure all the categories for implementation as noted above were adequately addressed, guidance from the Department of Public Service related to implementation was utilized.

The implementation actions identify who will be responsible for completing each action, the timeframe for when it should be completed, and an anticipated outcome that will help provide a measure of success. This section will serve as the basis for how energy planning will be incorporated into local activities. The implementation actions that were included are based on Woodbury's ability to lead the action. This will create consistency regarding implementation and put the responsibility for action on the Town. Other partners are listed when appropriate to indicate which groups will be engaged to support the successful completion of the identified actions.

Section III: Mapping

The mapping section allows the Town of Woodbury to visually identify where renewable energy generation is most suitable. This section combines resource information with specific known and possible constraints to the development of renewable energy generation. The mapping section also allows the opportunity to identify preferred locations for renewable energy development and areas that are unsuitable for development of any kind. In addition, the maps identify existing infrastructure to support renewable energy development.

In general, the mapping information looks at state-level data and breaks it down to a municipal perspective. From there, an analysis was done (as noted in Section I) regarding the potential renewable energy generation that might be possible based on resource areas and constraints.

This information is useful to visualize what geographies throughout Central Vermont are most ideally suited or best to avoid regarding renewable energy siting.

This section also contains specific information regarding the development and siting of renewable energy resources that are reflected on the maps. The Regional Planning Commission did, however, identify additional possible constraints to be considered. These include elevations above 2,500 feet, slopes greater than 25%, municipally owned lands, and lakeshore protection buffer areas of 250 feet. The decision was made to include these resources as possible constraints to allow for further analysis by the region or the municipalities to determine if development of renewable energy generation facilities may be appropriate based on specific conditions.

Appendices

There are two appendices included with this plan. Appendix A provides definitions for the known, possible, and regional constraints that are included on the maps and discussed in Section III. These definitions include source information and, in several instances, provide insight as to why the resource is listed as a known, possible, or regional constraint. Appendix B includes the specific resource and constraint maps. Included in the resource mapping is data specific to wind, solar, hydrological, and woody biomass. All these maps also include information regarding three-phase power and transmission lines; roads; and other relevant data used to assist with siting of renewable energy development.

How This Plan Will Be Used

The Woodbury Energy Plan will establish the policies that will help the Town achieve its share of the state's goal of 90% of the state's energy coming from renewable sources by 2050, as outlined in the 2016 State Comprehensive Energy Plan. For this document to have standing, it will need to receive a Determination of Energy Compliance (DOEC) from the Central Vermont Regional Planning Commission (CVRPC). This determination will give the Woodbury Town Plan "substantial deference" before the PUC during their review of applications for Certificates of Public Good related to renewable energy generation facilities. Once a DOEC has been issued, the Woodbury Town Plan will be used to establish a position in proceedings before the PUC if warranted. Additionally, where applicable, the Town Plan will be used during Act 250 proceedings before the District 5 Environmental Commission.

Additional Energy Generation Technology

The general premise of the Woodbury Energy Plan is based on the idea that generation of energy will be achieved using more renewable sources and less fossil fuel-based resources. To this end, the focus for generation of energy is primarily based on existing technologies such as solar, wind, hydroelectric, and use of woody biomass and biogas as renewable forms of energy when developed in a sustainable manner. This direction is taken from the State's Comprehensive Energy Plan which focuses on electrification of the grid with alternative energy

generation in order to meet their goals of 90% of the state's energy use coming from renewable sources by 2050.

The sources of renewable energy generation that are identified in this plan include current technologies that are known and supported in Vermont. Advances in the development of renewable energy technologies may result in generation measures or techniques that are not currently considered in this plan but may be more efficient or effective. As such, this plan will consider renewable generation technologies that do not have an adverse impact on the Town of Woodbury, the Central Vermont Region, or the policies that guide the Planning Commission and not be limited exclusively to the generation techniques and technologies noted herein.

Analysis & Targets

In order to adequately determine if the Town of Woodbury is on the right path to meeting its share of the state's goal of 90% of the energy used being produced by renewable resources, an identification and analysis of current energy use is necessary. To this end, the following questions have been identified to help determine current energy use and targets moving forward.

1. Does the plan estimate current energy use across transportation, heating, and electric sectors?
2. Does the plan establish 2025, 2035, and 2050 targets for thermal and electric efficiency improvements, and use of renewable energy for transportation, heating, and electricity?
3. Does the plan evaluate the amount of thermal-sector conservation, efficiency, and conversion to alternative heating fuels needed to achieve these targets?
4. Does the plan evaluate transportation system changes and land use strategies needed to achieve these targets?
5. Does the plan evaluate electric-sector conservation and efficiency needed to achieve these targets?

These five questions and their respective responses serve as the basis for identifying where the Town of Woodbury is now, where it needs to go, and how it will get there in terms of its energy future.

1. **Estimates of current energy use across transportation, heating, and electric sectors.**

Transportation

Transportation is a large consumer of energy in Woodbury. Transportation typically consists of passenger vehicles, light duty trucks, and heavy-duty trucks. It may also include transportation related to public transit, rail, or air service; however, these uses are minimal and trips may not originate within the municipality. As such, this section focuses primarily on vehicles, however rail, air, and public transit are addressed in other sections of the energy plan and throughout the municipal plan. Table 1 provides an overview of the current energy usage in Woodbury related to transportation.

Table 1
Current Transportation Energy Use

Transportation Data	Municipal Data
Total # of Vehicles (ACS 2011-2015)	744
Average Miles per Vehicle (VTrans)	12,500
Total Miles Traveled	9,300,000
Average Gallons Used per Vehicle per Year (VTrans)	576
Total Gallons Use per Year	500,000

Transportation BTUs (Billion)	60
Average Cost per Gallon of Gasoline (RPC)	2.31
Gasoline Cost per Year	$1,155,000.00

This table uses data from the American Community Survey (ACS) and Vermont Agency of Transportation (VTrans) to calculate current transportation energy use and energy costs.

Electricity

In 2016, Woodbury's electricity usage was split at 17% by commercial and industrial customers, and 83% by residential customers. Utility rates are regulated by the Vermont Public Utility Commission. In 2018, the U.S. Energy Information Administration reported the average cost per kilowatt hour in Vermont was approximately 15 cents and approximately 18 cents for all New England. Woodbury's current electricity usage can be found in Table 2, below:

Table 2 Current Electricity Use	
Use Sector	Current Electricity Use
Residential (Efficiency Vermont) (kWh)	4,618,193
Commercial and Industrial (kWh)	970,901
Total (kWh)	5,589,093

This table displays current electricity use within the municipality. This data is available from Efficiency Vermont (EVT).

Home Heating

2015 American Community Survey (ACS) Data indicate that approximately 14.6% (60) of homes in Woodbury are heated with fuel oil. The number of homes heated with propane and other bottled fuel oils has only decreased slightly from 96 in 2010 to 81 in 2015. Electric heat has increased from 0 in 2010 to 10 in 2015, and wood heat has dramatically increased from 133 in 2010 to 240 in 2015.

Municipal Energy Use:

Table 3 provides a breakdown of the fuel sources used for residential heating in Woodbury while Table 4 lists the current commercial energy use.

Table 3 Current Municipal Residential Heating Use				
Fuel Source	Municipal Households (ACS 2011-2015)	Municipal % of Households	Municipal Square Footage Heated	Municipal BTU (in Billions)
Natural Gas	0	0.0%	0	0.00
Propane	81	19.7%	141,648	8.50
Electricity	10	2.4%	18,160	1.09
Fuel Oil	60	14.6%	85,352	5.12
Coal	0	0.0%	0	0.00
Wood	240	58.4%	415,864	24.95

Other (Includes Solar)	20	4.9%	36,320	2.18
No Fuel	0	0.0%	0	0.00
Total	**411**	**100%**	**697,344**	**41.84**

This table displays data from the ACS that estimates current municipal residential heating energy use.

Table 4 Current Commercial Energy Use			
	Commercial Establishments in Municipality (VT DOL)	Estimated Thermal Energy BTUs per Commercial Establishment (in Millions) (VDPS)	Estimated Thermal Energy BTUs by Commercial Establishments in Municipality (in Millions)
Municipal Commercial Energy Use	10	394	3,940

This table uses data available from the Vermont Department of Labor (VT DOL) and the Vermont Department of Public Service (DPS) to estimate current municipal commercial establishment energy use in the municipality.

2. **2025, 2035, and 2050 targets for thermal and electric efficiency improvements, and use of renewable energy for transportation, heating and electricity.**

Energy efficiency is commonly viewed as the most effective and lowest-cost option for reducing energy consumption for electricity, heat, and transportation. Energy efficiency and conservation efforts such as improved insulation and weatherization of new and existing structures; improvements in building design; and the use of high-efficiency vehicles often have a dramatic impact on reducing fuel consumption. These methods are supported and encouraged by the town. In a challenging economy and at a time of increasing concern for the impacts of climate change, steps to reduce fuel use, fuel expenditures, and to shrink emissions make good sense for the pocketbook and the environment.

For the purposes of this section, thermal and electric efficiency will be defined as overall improvements or reductions in the amount of energy used to run mechanical systems or provide climate control for structures. To effectively identify efficiency improvements for Woodbury, the Central Vermont Regional Planning Commission has provided targets for efficiency improvements for each of the target years. These improvements relate to residential, commercial, and overall electric efficiency. The target number may seem to be skewed towards the later years, however, there is an expectation that efficiencies will increase with technological advances and occur over time regardless of additional actions being taken. The thermal efficiency targets for residential and commercial improvements are noted in Table 5.

Table 5 Targets for Thermal Efficiency Improvements			
Year	2025	2035	2050
Residential – Increased Efficiency and Conservation (% of municipal households to be weatherized)	20%	42%	92%
Commercial - Increased Efficiency and Conservation (% of commercial establishments to be weatherized)	22%	33%	61%

This table displays targets for thermal efficiency for residential and commercial structures based on a methodology developed by DPS using data available from the regional Long-range Energy Alternatives Planning (LEAP) analysis and ACS. The data in this table represents the percentage of municipal households and commercial businesses that will need to be weatherized in the target years.

For Woodbury to help support the state's goals of 90% of the energy used being derived from renewable sources by 2050, the Central Vermont Regional Planning Commission allocated megawatt hour targets for the years 2025, 2035, and 2050. This municipal target is based on an allocation from a region-wide target for renewable energy generation. Table 6 notes Woodbury's targets for renewable energy use and Table 7 identifies the targeted renewable energy generation.

Table 6 Targets for Renewable Energy Use			
Year	2025	2035	2050
Renewable Energy Use - Transportation	9.6%	31.3%	90.2%
Renewable Energy Use - Heating	51.0%	65.9%	93.1%

This data displays targets for the percentage of transportation and heating energy use coming from renewable sources during each target year. This data was developed using the LEAP analysis.

Table 7 Targets for Renewable Energy Generation			
Year	2025	2035	2050
Total Renewable Generation Target (in MWh)	1,457	2,332	5,831

Renewable generation targets for municipalities were developed by the regional planning commission.

Groups to Support Energy Planning

State and local support for energy planning makes identifying energy related actions and implementing energy objectives a more manageable task. Several groups exist that fill this role. A brief overview of these groups is noted below including some of the accomplishments that benefit the Town of Woodbury.

Efficiency Vermont

Efficiency Vermont helps all Vermonters to reduce energy costs, strengthen the local economy, and protect the environment by making homes and businesses energy efficient. A volumetric charge on electric customers' bills supports energy-efficiency programs.

Efficiency Vermont provides technical assistance, rebates, and other financial incentives to help Vermont households and businesses reduce their energy costs with energy-efficient equipment, lighting, and approaches to construction and major renovation. Additionally, it partners extensively with contractors, suppliers, and retailers of efficient products and services throughout the state.

It is operated by a private nonprofit organization, the Vermont Energy Investment Corporation, under an appointment issued by the Vermont Public Utility Commission.

3. **Evaluation of the amount of thermal-sector conservation, efficiency, and conversion to alternative heating fuels needed to achieve these targets.**

Energy Audits and Energy Efficiency Measures

The Environmental Protection Agency estimates that half of the energy used in most buildings is for heating and cooling. Much of this energy is lost -seeping through cracks in windows and doors for instance -which wastes energy and money and makes homes and businesses less comfortable.

Weatherization is the practice of modifying a building to protect its interior from the elements, to reduce energy consumption, and to optimize energy efficiency. Investing in thermal efficiency improvements -primarily air sealing, insulation, and heating system replacements--can dramatically reduce a home's heating energy use and an owner's fuel bills. Vermonters' 2010 fuel bills were nearly twice as much as those of a decade earlier.

An estimated 62,000 single and multi-family homes in Vermont will require energy efficient improvements by 2020. The state's volatile weather conditions play a critical role in how buildings can cost-effectively be heated and that most of the economic benefit of money Vermonters spend on fossil fuel accrues outside the state. At current fuel prices home energy efficiency investments can save Vermont residents approximately $1,000 per year.

As a result, the task force suggests "comprehensive and rapid weatherization" of Vermont's buildings to:

- Reduce the vulnerability of Vermont ratepayers to fuel market volatility and dramatic weather fluctuations.
- Ensure that more of the money spent on energy will stay within the Vermont economy.

One of the most important goals in the 2016 Vermont Comprehensive Energy Plan is for the state to use energy audits, weatherization, and other tools to substantially improve the energy fitness of 25% of the state's housing stock by 2020.

After weatherization, the next step to increasing home heating efficiency is replacing outdated or inefficient home heating systems with high efficiency units. In general, this conversion would typically include replacing a system that used fossil fuel such as oil with an electric heat pump, new efficient wood burning system, or other renewable based heating systems. Specifically,

Table 8 identifies the number of new efficient wood heating systems or heat pumps needed in each target year to meet Woodbury's portion of the state's comprehensive energy goals.

Table 8 Thermal Sector Conversions Per Target Year (Residential and Commercial)			
Year	2025	2035	2050
New Efficient Wood Heat Systems (in units)	1	0	8
New Heat Pumps (in units)	42	107	204

This table provides a target for new wood heating systems and new cold climate heat pumps for residential and commercial structures in the municipality for each target year. This target was calculated using data from LEAP and ACS.

It has been acknowledged that there are obvious shortcomings associated with the local data based upon the top down method of disaggregating regional data to the municipal level and that the targets established should be used to show the general direction in which change needs to occur. However the total target number for new heat pumps far exceeds what the Town considers to be realistic or feasible or desirable based upon local conditions. As only 140 homes currently heat with fossil fuels a target of 353 new heat pumps appears a considerable stretch. This would require existing wood systems to convert to this technology.

Expanding the use of Advanced Wood Heat is a strategy that helps Vermont make measurable progress toward the goals of the 2016 Vermont Comprehensive Energy Plan (CEP), the Vermont Clean Energy Development Fund (CEDF), Vermont's greenhouse gas reduction goals, and the Working Lands Initiative's economic development targets. Tracking the development of wood heat allows the State of Vermont to measure progress toward these goals. The impacts of wood heat on Vermont's economy are clear: wood heat creates jobs, lowers energy costs, and retains local wealth. The annual revenue associated with cordwood production and sale is approximately $85 million. The fuel cost savings associated with heating with wood rather than with heating oil or propane are an estimated $31.5 million annually. A net $70 million was retained in the Vermont economy in 2016 by Vermonters and Vermont businesses and institutions choosing to heat with wood rather than fossil fuels. Factoring that only 22 cents of every dollar spent on heating oil or propane are likely retained in the local economy, and 80 cents of every dollar spent on wood are likely retained in the local economy.

As the town is significantly forested, and recognizes the importance of supporting the local logging businesses and regional economy, ensuring existing wood systems are retained and upgraded to newer efficient systems as well as adding more wood systems would be a more realistic and feasible goal. Therefore the Town would like to exceed the proposed targets for New Efficient Wood Heat Systems, as these systems would provide a larger benefit to the Town in the energy and economic sectors. The Town will still pursue and support the transition to cold climate heat pumps, but would like to see more new efficient wood heat systems in the future (beyond 8). Before the next plan update the town will consider undertaking a custom analysis based upon PUC guidance materials to recalibrate targets to better suit local conditions.

A building energy audit is a service where the energy efficiency of a structure is evaluated by a person using professional equipment (e.g., blower doors, infrared cameras) to identify best ways to improve energy efficiency in heating and cooling the house. The goals are to:

- Evaluate the building's overall thermal performance.
- Identify cost effective ways to improve the comfort and efficiency of the building.
- Estimate the potential savings in fuel and expenses for the proposed changes.

Many building and energy contractors in Central Vermont offer home and business energy audits for a fee (typically ranging from $300-$500). Depending on income, some families or individuals may qualify for free audits or energy efficiency grants from Efficiency Vermont or other organizations.

4. **Evaluation of transportation system changes and land use strategies needed to achieve these targets.**

Transportation Efficiency

According to the 2016 Vermont Comprehensive Energy Plan, transportation accounts for approximately one third of the overall energy use in Vermont, at 33.7%. Nationally, transportation represents 28.6% of overall energy use. This difference is a result of Vermont's higher dependence on automobile transportation due to the state's rural character, more dispersed population, as well as a relatively small industrial base.

Gasoline and diesel account for more than a quarter of all energy consumed in Vermont across all energy sectors. Gasoline and diesel consumption are twice that of fuel oil and kerosene used for heating. Petroleum combustion in the transportation sector is also the state's largest contributor to greenhouse gas emissions.

Fuel prices are typically higher in northern than in southern New England. Significant increases in the costs of gasoline, diesel fuel, and heating fuel have occurred over the last decade. Price spikes in recent years highlight our area's heavy reliance on limited sources and types of fuel and leave the local population, particularly low-income residents, vulnerable to fuel shortages and price fluctuations.

One component of reducing fossil fuel-based energy used in the transportation sector is to convert or replace older vehicles with alternative fuel vehicles such as electric or biodiesel. Table 9 identifies the targets for the number of new electric or biodiesel vehicles over each of the target years to help Woodbury reduce its transportation energy consumption to a point that will help meet the state's comprehensive energy planning goals. Again, this information assumes efficiency and improved technologies will be included in the development of vehicular fuel technology.

It should be noted that another consideration is to reduce the total number of vehicles overall. This can be done through the creation of compact development patterns, increased transit

opportunities, or alternative transportation options such as bicycles or walking. The Town should evaluate additional objectives that will promote a shift away from vehicle use rather than rely on the conversion of vehicles to renewable fuels.

Table 9 Transportation Fuel Switching Targets			
Year	2025	2035	2050
Electric Vehicles	64	442	882
Biodiesel Vehicles	111	206	335

This tables displays a target for switching from fossil fuel-based vehicles (gasoline and diesel) to electric vehicles and biodiesel vehicles. This target is calculated by using LEAP and ACS data.

5. **Evaluation of electric sector conservation and efficiency needed to achieve these targets.**

Conservation and efficiency of electricity is a key component to achieving the state's comprehensive energy planning goals. Over time, advancements in technology will provide a degree of the needed efficiency and conservation measures to achieve these goals, but also, efforts can be taken now to ensure the Town of Woodbury is on track to meet its conservation and efficiency targets. Table 10 outlines the electric efficiency improvements needed for each of the three target years. Additionally, information related to more proactive ways to achieve these efficiencies are also noted below.

Table 10 Targets for Electric Efficiency Improvements			
Year	2025	2035	2050
Increase Efficiency and Conservation	1.5%	7.3%	15.2%

Data in this table displays a target for increased electricity efficiency and conservation during the target years. These targets were developed using regional LEAP analysis.

Energy Efficient Design

It is much more time-and cost-effective to plan, design and build a structure and its systems with energy efficiency in mind at the outset than to perform weatherization activities after the building has been constructed.

Leadership in Energy and Environmental Design (LEED) consists of a suite of rating systems for the design, construction and operation of high-performance green buildings, homes and neighborhoods. Developed by the U.S. Green Building Council, LEED is intended to provide building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

Across Vermont, in 2012 nearly one-third of new homes were EnergyStar rated. The 2016 Vermont Comprehensive Energy Plan sets a goal of 60% by 2020.

School Energy Efficiency

Schools are one of the largest consumers of energy in most Vermont communities. Because they are such large consumers of a variety of energy sources, they often offer significant opportunities for saving fuel and taxpayer expenditures. There have been local efforts to save schools, and local taxpayers, fuel and funds.

The Woodbury Elementary School converted its heating system to a wood pellet system. It also underwent weatherization improvements that resulted in a higher-than-average energy efficiency rating. These improvements resulted in the school receiving an award for their achievement.

Local Food

Woodbury's location is within twenty (20) miles of robust COOP food stores in Hardwick, Montpelier and Morrisville. These farmer-to-consumer markets afford Woodbury residents access to locally grown vegetables and animal products and strengthen the relationships between food producers and consumers. Buying direct from COOPS or at local farmer's markets ensures residents receive fresh, healthy food at a competitive price without incurring excessive transportation costs.

Woodbury residents may choose to shop at large grocery chain stores where the average food item in the average grocery store travels between 1,000 and 1,500 miles to reach the table. Food transportation consumes a considerable amount of energy, and the related emissions contribute to climate change. A typical meal bought from a conventional supermarket chain – including some meat, grains, fruit and vegetables – consumes 4 to 17 times more petroleum for transport than the same meal using local ingredients.

Renewable Energy

The Town of Woodbury actively supports the use and development of renewable energy. Specifically, through 2016 renewable energy generation installations create approximately 234 megawatt hours of energy each year. This includes a mix of solar and wind. This allocation of renewable energy generation will help the Town meet their renewable energy goals. The specific breakdown of renewable energy generation is outlined in Table 11. Table 14 also provides a breakdown of existing renewable energy generation and identifies those sources generating 6 kW or more.

Table 11 Existing Renewable Energy Generation		
Renewable Type	MW	MWh
Solar	1.09	122.9
Wind	0.00	0.00
Hydro	0.00	0.00
Biomass	0.00	0.00
Other	0.00	0.00
Total Existing Generation	**1.09**	**122.9**

This table shows existing renewable generation in the municipality, in MW and MWh, based on information available from the Vermont Department of Public Service.

Hydroelectric

In the past, local waterways powered numerous mills and provided small-scale electricity across Vermont. Today, power from in-state and out-of-state hydroelectric dams (most notably Hydro Quebec) supply approximately 40% of Vermont's annual power needs.

Woodbury is home to several dams. Two were used to generate electricity, one located on Nichol's Pond and the other located on East Long Pond. Both were built in the early 1900's as a backup water supply. Today, these dams are historic, and there are no plans to convert these areas to hydroelectric usage, considering the lack of cost-effectiveness.

Currently, there are no hydroelectric facilities in Woodbury. However, due to the environmental impact of damming these sites for the small generation boost, there are no plans in place currently to develop hydroelectricity in Woodbury.

Solar

Converting radiation from the sun into electricity is a clean, renewable energy source. Solar photovoltaic (PV) cells convert sunlight into electricity for homes and businesses, while solar thermal arrays provide hot water for domestic use and may even be designed to augment a household's heating system.

Advances in technology have improved solar efficiency and solar arrays are becoming more affordable. The cost to install one kilowatt of PV in Vermont fell by nearly 40% from 2004 to 2011. Federal and state incentives and leasing programs have improved financial accessibility to the technology.

As of 2018, solar collectors were installed at 18 sites in Woodbury with a total photovoltaic (PV) capacity of 109 kW. This number derives from numerous, dispersed residential scale solar projects. Table 13 lists the number of PV sites by the serving electric company.

Woodbury has made great strides to incorporate solar energy into its energy portfolio. According to the Energy Action Network's Energy Dashboard, Woodbury ranks 128th among Vermont municipalities in total solar installation with 18 sites. Several south-facing roofs and

slopes provide the potential for even greater use of the technology, although some roofs may need to be retrofitted to support solar panels.

In 2014, the Legislature enacted Act 99, an Act relating to self-generating and net metering, which increased the Net-Metering program's cumulative capacity cap to 15% of each utility's peak capacity. As the amount of distributed renewable energy in Vermont has grown significantly over the past several years, the cost of installing solar generation has also decreased dramatically. Financial incentives for net-metered solar, however, have remained high, making it the most expensive of Vermont's renewable energy programs. Solar net-metering systems receive up to 18.9 cents per kilowatt-hour (kWh) compared to solar prices under the State's standard-offer program of 10-13 cents and roughly similar prices for power purchase agreements and utility-built systems.

At the same time, the rapid buildout of distributed generation has caused important changes in the state's electric system. One positive effect of this development, particularly as a result of increased solar capacity, has been that Vermont's system peak is no longer occurring during mid-day, which means that Vermont avoids regional capacity charges. On the other hand, the expansion of distributed generation has led to stress on some portions of the distribution grid, necessitating costly investments to interconnect additional generation.

A majority of Woodbury residents are served by Hardwick Electric Department, HED, which has expressed the problem of grid constraints being able to handle solar electricity being fed onto the grid. As such, HED has imposed limits on how much solar the utility is willing to allow to connect to the grid through net-metering. This forced constraint greatly limits Woodbury's ability to achieve the State's 2050 renewable energy goals.

According to the Vermont Energy Atlas, Woodbury has the capability to produce 565 megawatt hours on rooftop solar alone. There is also the possibility of 995,136 megawatt hours from ground mounted solar as well. Additional information on potential generation is noted in Table 12 and is reflected on the maps in Appendix B.

Commercial leasing programs now allow households and companies access to solar energy at fixed costs that often are less than their current electricity bills. Further advances in technology will likely improve the efficiency, and lower the cost, of solar panels. Finding space for additional solar arrays remains an issue in Woodbury, particularly for residents and businesses lacking south-facing rooftops or land.

Wind

Improvements in turbine technology in combination with federal and state subsidies have recently made investments in wind power more attractive across the country as well as in Vermont. The Vermont Energy Atlas identifies the possibility of generating 3,280,620 megawatt hours of wind in Woodbury. The primary wind production area sits on the western ridgeline in Woodbury, with additional generation possible in the northern center of Town. However, these locations also are highest priority forest blocks for connectivity, as well as some agricultural soils,

and areas of significant scenic and natural beauty—accordingly, these areas shall not be adversely affected by the siting of wind turbines. Specific suitability for wind resources is noted in the mapping section. The wind maps identify where wind speeds are appropriate for smaller scale wind generation and do not include large industrial scale wind suitability (for the purposes of this plan, and consistent with the Central Vermont Regional Energy Plan, industrial-scale wind development includes any wind turbine with a hub height greater than 125 feet, excluding the blades).

In the past, a wind development was proposed on land previously used for logging. In assessing community support for this project, the Town of Woodbury's residents were decidedly opposed to the development of wind in that location. Since this proposal, the Town of Woodbury has not had any large-scale wind developers proposing new locations in Town.

Development of any wind project must meet certain criteria to ensure that it does not cause undue negative impacts on natural, recreational, and aesthetic resources. Woodbury plans to establish supplemental clear and specific guidelines that can be used when evaluating proposed large-scale wind projects. Also, the current Central Vermont Regional Energy Plan limits wind generation facilities to a hub height of 125 feet and restricts development above 2,500 feet in elevation. Accordingly, any development of a wind project in Woodbury shall be consistent with these regional limits.

Wood

Historically, wood has been Vermont's, and Woodbury's, most abundant local energy source. Statewide residential firewood consumption grew from 275,000 cords per year in 1997 to 315,000 cords in 2008, a nearly 15% increase. Current use of cordwood for heating in Woodbury is unknown. In addition to firewood, wood biomass heating, in the form of woodchips and pellets, is becoming more popular.

Woodbury is significantly forested, and the Woodbury Planning Commission recognizes the importance of supporting the local logging businesses and regional economy. The Commissioners would like to exceed the proposed targets for New Efficient Wood Heat Systems, as these systems would provide a larger benefit to the Town in the energy and economic sectors.

More specifically, the 2016 State Comprehensive Energy Plan, CEP, calls for doubling the use of wood heating in Vermont. [1] Expanded use of advanced wood heat will help Vermont make measurable progress toward several key goals. Developing local demand for cordwood, wood chips, and pellets will help create vital markets for low-grade timber from managed forests. Heating with local wood fuels reduces the economic drain on Vermont's economy. Factoring that only 22 cents of every dollar spent on heating oil or propane are likely retained in the local economy, and 80 cents of every dollar spent on wood are likely retained in the local economy,

[1] Expanded Use of Advanced Wood Heating in Vermont March 2018-Biomass Energy Resource Center

an estimated net $70 million was retained in the Vermont economy in 2016 by Vermonters choosing to heat with wood rather than fossil fuels. Wood heat lowers and stabilizes energy costs and keeps dollars circulating in the local economy. Wood heat also creates and supports jobs in the forestry, wood processing, and transportation sectors.

Approximately 37% of Vermont's households utilize biomass (including cordwood and wood pellets) to heat at least a portion of their homes.

There are potential negative side effects to extensive wood harvesting and burning, among them habitat impairment, soil erosion, sedimentation and water pollution if forests are not properly managed, as well as the degradation of air quality and an increased risks of accidental fires. These are, however, easily manageable risks. Best forest management practices, as outlined by the state and independent forest certification groups, can reduce the adverse impacts of harvesting while regular maintenance of wood stoves and adherence to fire codes lessens the risk of accidental fires.

According to the Vermont Department of Public Service, the efficiency factor for biomass is between 60% and 80%. Use of wood for heating is calculated as carbon-neutral; that is, the carbon sequestered by a tree during its lifetime balances with the carbon emitted during its burning.

If factoring in the fossil fuels used to cut and haul wood/wood biomass, as well as the inefficiencies of current biomass burning, wood may not be fully carbon neutral. More efficient burning of woody biomass would greatly improve biomass's potential for wider adoption as a local power source. This could be supported by converting to high-efficiency wood heating systems as noted in Table 8.

Other Local Renewable Energy Sources

Other potential local renewable energy sources include geothermal energy, which uses the temperature differential in water taken from deep wells to heat and cool buildings.

Siting

An analysis of existing land and renewable resource potential will help determine the amount of local renewable energy that could be developed within the Town of Woodbury. Table 7 identifies the amount of renewable energy generation (in megawatt hours) that the Town of Woodbury would need to generate by 2050 to help meet its share of the Region’s total renewable energy generation.

The information in Table 12 includes an analysis of the renewable energy generation potential and will be complemented by information and maps that are in Appendix B of the plan. There is adequate land area available for Woodbury to accommodate renewable energy generation that can meet their share of the region's renewable energy allocation. It should be noted, however, that not all renewable energy generation is appropriate at the same scale. For example, wind may be appropriate in the Town of Woodbury at a residential scale, but not at a commercial

scale as detailed in the Mapping Section, in Appendix "A", and as illustrated on both the Known and Possible Constraints Maps, and the Wind Resources Map. Local objectives will need to be established to address these issues. However, as previously stated, and consistent with the Central Vermont Regional Energy Plan, industrial-scale wind development is not appropriate and therefore shall not be permitted in Woodbury. Also, it should be noted that not all areas are appropriate for development of renewable energy and more detailed analysis may be needed to identify appropriate locations for renewable energy development.

One final factor to consider is the efficiency of renewable resources and their ability to generate energy. Since not all sources of renewable energy generation provide the same level of capacity, it is important to understand the efficiency differences between the common types of renewable generation. Simply put, the sun doesn't always shine and the wind won't always blow therefore these renewable generators are not always producing energy. These efficiency factors will allow the municipality to utilize whatever renewable resource is most appropriate for the specific circumstances.

Table 12
Potential Renewable Energy Generation

Renewable Type	MW	MWh
Rooftop Solar	0.46	565
Ground-mounted Solar	811.43	995,136
Wind	1,070.00	3,280,620
Hydro	0.00	0
Biomass and Methane	0.00	0
Other	0.00	0
Total Renewable Generation Potential	**1,881.89**	**4,276,321**

Renewable generation potential is based on mapping completed by the regional planning commission that is based on the Municipal Determination Standards and associated guidance documents developed by DPS. The renewable generation potential is expressed in MW and MWh by the type of renewable resource (solar, wind, hydro, etc.).

Table 13
Existing Renewable Solar Energy Generation in Woodbury based on existing Certificates of Public Good

Renewable Resource Type	Utility	Capacity kW	Number of Sites
Solar	Hardwick Electric Department	98.3 kW	16
Solar	Washington Electric Coop	10.3 kW	2

This table represents information found through Certificates of Public Good issued by the Public Utility Commission. More information can be found at the Vermont Community Energy Dashboard.

Conclusion

As noted throughout this section, the Town of Woodbury faces challenges like the rest of the state regarding its energy future including the need for conservation, renewable energy development, and changing habits and attitudes towards renewable technology and land use

choices. All these components need to work together in order to ensure a collective and comprehensive approach to energy planning is initiated.

The information provided in this section has shown that Woodbury can shape its energy future within the spectrum of the avenues that it can control. The unknown component is whether the changes and development will occur and when. The State Comprehensive Energy Plan has set a goal of 90% renewable energy by the year 2050. This goal is achievable if all stakeholders including the state, the region, the municipalities, the energy developers, the private land owners, the special interest groups, and the interested citizens come together to discuss the issues and work collectively to identify the outcomes that satisfy the needs of the whole to the best of their ability.

This plan primarily explores renewable energy related to the production of electricity and electrification of the grid. In addition to the resources noted herein, it's important to consider other forms or technologies that could contribute to our renewable energy future. With advancements in safety, efficiency, and technology, the Region's energy future could look vastly different in the next five or ten years. This will not only impact the generation of energy, but the delivery and infrastructure to support distribution of energy.

Pathways and Implementation Actions

The following goals and implementation actions outline the specific pathways for the region to consider in order to effectively support the State of Vermont's goals that are outlined in the 2016 Comprehensive Energy Plan. These goals are intended to cover a variety of pathways that address land use and siting of developments (including renewable energy generation); efficiency of building construction and weatherization; and fuel switching from fossil-based fuels to more sustainable and renewable options.

A. Conservation and Efficiency

Objective A-1: Increase conservation of energy by individuals and organizations.

	Implementation Action	Responsibility	Priority/ Timeline	Measure of Success
1	Formally identify an Energy Coordinator and post their contact information on the Town Website.	Planning Commission, Town Administration	High 1 – 2 Years	Energy Coordinator is identified and contact information is shared with community members.
2	Hold public meetings and invite industry professionals to present on weatherization and fuel switching options for residents.	Planning Commission	High/ Sustained 1 – 2 Years	Meetings are held and presentations are given on energy improvements residents can make.

Objective A-2: Promote energy efficiency in the design, construction, renovation, operation, location and retrofitting of systems for buildings and structures.

	Implementation Action	Responsibility	Priority/ Timeline	Measure of Success
1	Revise Zoning Bylaws to include references to Statewide Residential and Commercial Building Energy Standards.	Planning Commission	High 1 – 4 Years	Zoning Bylaws are revised to include information on residential and commercial building standards.
2	Distribute information on energy standards and efficiency options to residents and local developers.	Zoning Administrator	High/ Sustained 1 – 2 Years	Zoning Administrator is provided information to distribute with permit applications and to interested residents.

Objective A-3: Identify ways to decrease the use of fossil fuels for heating.

	Implementation Action	Responsibility	Priority/ Timeline	Measure of Success
1	Host a presentation of alternative heating fuels, their cost to implement, and available incentives for residents of Town.	Planning Commission, Efficiency Vermont, Industry Professionals.	Medium 1 -5 Years	A presentation is held with industry professionals to showcase alternative heating options.
2	Recalibrate Thermal Sector Conversion Targets to better suit local conditions.	Planning Commission	Medium 1 -5 Years	Undertaking a custom analysis based upon PUC guidance materials

Objective A-4: Demonstrated municipal leadership by example regarding efficiency of municipal buildings.

	Implementation Action	Responsibility	Priority/ Timeline	Measure of Success
1	Conduct baseline energy audits of all municipal buildings and structures, including the school.	Planning Commission, Efficiency Vermont	Medium 1 – 5 Years	Baseline energy use for all municipal buildings is measured and logged.

B. Reducing Transportation Energy Demand, Single Occupancy Vehicle Use, and Encouraging Renewable or Lower-Emission Energy Sources for Transportation

Objective B-1: Encourage increased use of transit as a primary method to complete daily trips and reduce demands on existing infrastructure such as roads and parking.

	Implementation Action	Responsibility	Priority/ Timeline	Measure of Success
1	Identify challenges and opportunities for small-scale transit in Woodbury.	Planning Commission	Medium 1 – 5 Years	Planning Commission will hold at least two meetings to discuss the desires of transit in Woodbury and understand the challenges present.
2	Explore alternative trips that Woodbury may be able to take advantage of beyond the current service from Rural Community Transportation.	Planning Commission, Selectboard, Rural Community	Medium 1 – 5 Years	Planning Commission will work with local transit providers to identify any opportunities for new

		Transportation, Green Mountain Transit.		routes, and work with Selectboard to leverage funding for these services.

Objective B-2: Promote the shift away from single-occupancy vehicle trips to reduce congestion, impacts to local facilities, and support alternative options for transportation needs.

	Implementation Action	Responsibility	Priority/ Timeline	Measure of Success
1	Identify possible locations for a formal park-and-ride lot in Woodbury.	Planning Commission	High 1 – 3 Years	A list of 4 possible existing lots will be created and discussed at a public meeting.
2	Continue support of, and maintain a town representative on the regional Consolidated Union District (CUD), CV Fiber or other contractor(s) in the deployment of high-speed broadband connectivity.	Planning Commission	Medium 3 – 6 Years	Planning Commission will devote a public meeting to discussing the telecommunication needs of the community and the opportunities to improve access. Representation on CV Fiber CUD board.
3	Promote the Go Vermont webpage on the official Woodbury website.	Website Administrator	High 1 Year	A link to the Go Vermont webpage is added to Woodbury's municipal website.

Objective B-3: Promote the shift away from gas/diesel vehicles to electric or non-fossil fuel transportation options to reduce dependency on non-renewable fuel sources for transportation.

	Implementation Action	Responsibility	Priority/ Timeline	Measure of Success
1	Consider the implementation and possible locations for an EV charging station.	Planning Commission, Selectboard	Medium 1 – 6 Years	Locations for possible EV charging infrastructure are identified and grant opportunities are considered.
2	Partner with Drive Electric Vermont to invite them to	Planning Commission	Medium	Woodbury hosts one electric car focused

	community events to showcase electric vehicle options.		1 – 6 Years	event during the term of this plan.

Objective B-4: Facilitate the development of walking and biking infrastructure to provide alternative transportation options for the community.

	Implementation Action	Responsibility	Priority/ Timeline	Measure of Success
1	Establish bicycle and pedestrian facilities in the Village Centers and connecting to other prominent locations in town (e.g. South Woodbury, town forest, Woodbury Lake)	Planning Commission, Selectboard, Highway Department	Medium 1 – 6 Years	A public hearing is held to discuss the pros and cons of integrating more walking and biking infrastructure and Implementation of related actions as identified in the 2021 town plan.

Objective B-5: Demonstrated municipal leadership with respect to the efficiency of municipal transportation to show an on-going commitment on behalf of the Town of Woodbury.

	Implementation Action	Responsibility	Priority/ Timeline	Measure of Success
1	Identify possible municipal properties to take on EV charging stations.	Planning Commission	Medium 1 – 6 Years	At public meeting to discuss EV charging infrastructure, identify a list of municipal properties that may be suitable for EV charging.
2	Continue to inventory municipal vehicles and maintain records for at least seven years, in order to best consider efficiency in the replacement of these vehicles.	Selectboard	High/ Sustained 1 – 2 Years	Inventory of municipal vehicles is maintained.
3	Prioritize efficiency of vehicles when considering the purchase of a new vehicle, and consider the switch to biodiesel for municipal vehicles.	Planning Commission, Selectboard.	High/ Sustained 1 – 8 Years	In decision-making regarding purchase of new vehicles, fuel efficiency and biodiesel use will be considered.

C. Patterns and Densities of Land Use Likely to Result in Conservation of Energy

Objective C-1: The Town of Woodbury is committed to reducing sprawl and minimizing low-density development by encouraging density in areas where infrastructure exists or is planned to support growth.

	Implementation Action	Responsibility	Priority/ Timeline	Measure of Success
1	Revise Zoning bylaws to reflect the Future Land Use plan as contained within the 2021 town plan which may incorporate greater densities in the Village District, South Woodbury, and other neighborhoods planned for development in the Future Land Use map.	Planning Commission, CVRPC	High 1 – 4 Years	Zoning bylaws are revised, adopted, and include changes to density requirements.

Objective C-2: Strongly prioritize development in compact, mixed-use centers when feasible and appropriate and identify ways to make compact development more feasible throughout the Town of Woodbury.

	Implementation Action	Responsibility	Priority/ Timeline	Measure of Success
1	Apply for a Village Center Designation for Woodbury's villages though the State Designation Program.	Planning Commission, Selectboard, and CVRPC	Medium 1-5 Years	Woodbury receives at least one village center designation in the term of this plan.
2	Inventory buildings and sites in proximity to the village areas , that may be repurposed for multi-unit or elderly housing	Planning Commission, Selectboard.	Medium 1 – 3 Years	A list of possible buildings/properties to be converted into multi-family or other housing options is created.

D. Development and Siting of Renewable Energy Resources

Objective D-1: Evaluate generation from existing renewable energy generation including the identification of constraints, resource areas, and existing infrastructure by energy type.

	Implementation Action	Responsibility	Priority/ Timeline	Measure of Success
1	Hold a survey focusing on current thoughts on where solar is located, and what constraints may be considerable. Revisit and reassess at another interval in the term of this plan.	Planning Commission	High/ Sustained	A survey is distributed to residents and results are tabulated and posted online.

Objective D-2: Evaluate generation from potential renewable energy generation including the identification of constraints, resource areas, and existing infrastructure by energy type.

	Implementation Action	Responsibility	Priority/ Timeline	Measure of Success
1	Based upon additional extensive public input determine if the Town should include additional defined and specific parameters to guide the siting of larger scale renewable energy generation facilities.	Planning Commission	High 1 – 2 Years	Unsuitable and preferred areas for renewable energy generation is identified, and the consideration of municipal renewable energy are included in an updated/amended town plan.
2	Hold a public meeting halfway through the plan's duration (4 years from adoption) to assess constraints, and make any changes necessary to adapt to changing conditions in Woodbury.	Planning Commission	Medium 4 Years	A public meeting is held 4 years from adoption of this plan to discuss any changes to preferred or constrained areas.

Mapping

The siting and generation of renewable resources is a critical part to identifying whether the region can meet its share of the state's renewable energy goals by 2050. Furthermore, this analysis is important to determine where resources are available throughout the region to ensure no one municipality is unduly burdened with supporting more than should be reasonably anticipated. Finally, this information will better position the Town of Woodbury to evaluate the renewable energy generation options that are available to meet these goals.

To this end, maps were created for the Town of Woodbury that identify resources related to solar, wind, hydroelectric, and woody biomass. Maps were also created to identify constraints that may limit the overall area of possible resource development within the town. The following information will address the evaluation of current and future generation potential within the Town of Woodbury.

Existing Renewable Resource Generation

As noted in the Analysis and Targets section, Tables 11 (p. 15) and 13 (p. 18-19) identify the existing renewable generation for the Town of Woodbury. Information on existing generation is a representation of all projects that were issued a Certificate of Public Good by the Public Utility Commission through 2019. Projects that are currently under review are not included in these numbers therefore additional renewable energy generation may be developed that will not be noted in the total generation represented in Table 11 or 13.

Potential Renewable Energy Generation

Table 12 (p. 18) in the Analysis and Targets section identifies potential generation of renewable energy for Woodbury. This information is based on mapping data provided by the Vermont Center for Geographic Information (VCGI) and the Department of Public Service. This information includes specific data related to prime resource areas for solar and wind development which is an indication of where the conditions are most ideal for generation of the specific resource. Also included with this data is information regarding constraints to be considered when evaluating areas for renewable energy development. Additional detail regarding known and possible constraints is discussed below.

Constraints

As part of this effort, the Central Vermont Regional Planning Commission has identified information for each municipality related to renewable energy generation that includes an analysis and evaluation of resource areas within each municipality and how those resource areas are impacted by statewide and regionally identified constraints. In order to determine the impacts, an understanding of the constraints needs to be discussed.

For the purpose of this plan, constraints are separated into two main categories; known and possible. Known constraints are those areas where development of a renewable resource are

very limited and therefore are not likely to occur. Known constraints that have been identified include:

- Vernal Pools (confirmed or unconfirmed)
- River Corridors as identified by the Vermont Department of Environmental Conservation
- Federal Emergency Management Agency Identified Floodways
- State-significant Natural Communities and Rare, Threatened, and Endangered Species
- National Wilderness Areas
- Class 1 and Class 2 Wetlands (as noted in the Vermont State Wetlands Inventory or Advisory Layers)
- Regionally or Locally Identified Critical Resources

Similarly, the state has identified a list of possible constraints to be considered. Possible constraints identify areas where additional analysis will need to occur in order to determine if development of renewable energy resources is appropriate. In some cases, conditions may be prohibitive, but in others the conditions may be suitable for renewable energy development. The possible constraints include:

- Agricultural Soils
- Federal Emergency Management Agency Special Flood Hazard Areas
- Protected Lands (State fee lands and private conservation lands)
- Act 250 Agricultural Soil Mitigation Areas
- Deer Wintering Areas
- Vermont Agency of Natural Resources Conservation Design Highest Priority Forest Blocks
- Hydric Soils
- Regionally or Locally Identified Resources

In addition to the items listed above, the Regional Planning Commission, through its Regional Energy Committee, has identified additional constraints to be included for all the municipalities that were noted as being regionally significant. For the purposes of this mapping exercise, all the regional constraints are considered possible constraints. This is because the Regional Energy Committee determined that, like the statewide possible constraints, conditions could be such that developing renewable energy resources in these locations could occur but should be studied further at the municipal level to determine if the specific conditions regarding these locations are suitable. The possible regional constraints that were identified include:

- Elevations above 2,500 feet
- Slopes greater than 25%
- Municipally Owned Lands
- Lakeshore Protection Buffer Areas of 250 feet

Methodology

With all the known and possible constraints identified, this information was overlaid on the resources maps for solar and wind resources. Where known constraints existed the resource areas were deleted. Where possible constraints existed, the resource areas were shaded. The resulting areas included those lands where prime resources exist without any constraints and prime resource areas with possible constraints. The total area within these two categories served as the basis to determine the amount of resource that is available for potential development within the Town of Woodbury.

As noted in Table 12 of the Analysis and Targets section, based on the solar, wind, and hydroelectric potential within Woodbury, approximately 4,155,059 megawatt hours of energy could be produced, well above the town's allocation of 7,999 megawatt hours by 2050 as noted in Table 7. The potential energy generation for the Town of Woodbury increases when other sources of renewable energy generation such as biomass, biogas, and methane are included. No specific generation numbers are listed in Table 12 for these types of energy generation as their siting is not specifically tied to the availability of a resource, therefore calculating a potential for generation would be difficult.

Transmission Infrastructure

In addition to identifying and calculating possible generation of renewable energy based on resources and constraints, the mapping included in this plan also incorporates the existing three phase power infrastructure throughout the municipality. This is important to include because renewable energy generation needs three phase power to provide energy generation back to the grid. Without three phase power, renewable energy generation would be limited to scales necessary to serve uses in close proximity that would not require transmission infrastructure.

In addition tolimits on three phase power other potential limitations include existing transmission infrastructure and the ability to transmit energy from its point of generation to the possible users. As noted previously, the mapping includes three phase power, but it also includes information on current transmission infrastructure. This is another component to consider when identifying where specific generation types should be located to ensure the transmission capacity exists within the grid or to identify areas where upgrades may be needed before development of renewable energy generation can occur. Based on the factors noted above, it may be appropriate for mapping to identify areas where significant energy loads are currently occurring or anticipated based on future land use and zoning.

Preferred & Unsuitable Siting Locations

The Town of Woodbury recognizes the preferred locations that have been identified by the State of Vermont's Net Metering Rules. Additional preferred locations may be identified after

an analysis of the needs with the community have been conducted. The state preferred locations include but are not limited to:

- Parking lots
- Gravel pits
- Brownfield sites
- Landfills
- Rooftop installations

As seen on the attached map, Woodbury has a few quarry sites and a gravel pit that may be suitable for a State Preferred Site. Parking lots are not shown on the map. As of drafting this plan in 2019, there are no mapped brownfield sites or landfills in Woodbury.

Local Mapping

To provide a more specific visual representation of resources and constraints, mapping was developed by the Central Vermont Regional Planning Commission that includes:

- Solar Resource Areas
- Wind Resource Areas
- Hydroelectric Resource Areas
- Known Constraints
- Possible Constraints
- Woody Biomass Resource Area
- Existing Renewable Generation Sites
- Statewide Preferred Generation Sites

These maps should be used as a starting point to determine what areas may exhibit characteristics consistent with conditions that would support renewable energy development. More detailed review and analysis should be conducted to determine specific boundaries for resource areas or constraints. These maps can be found in Appendix B.

APPENDIX A

KNOWN & POSSIBLE CONSTRAINT DEFINITIONS AND DESCRIPTIONS

The following is a list of the known, possible, and regional constraints that were used and referenced in the mapping section of this document. A definition of the constraint including source of the data is provided.

Known Constraints

Vernal Pools (confirmed and unconfirmed layers)
Source: Vermont Fish and Wildlife, 2009- present

Vernal pools are temporary pools of water that provide habitat for distinctive plants and animals. Data was collected remotely using color infrared aerial photo interpretation. "Potential" vernal pools were mapped and available for the purpose of confirming whether vernal pool habitat was present through site visits. This layer represents both those sites which have not yet been field-visited or verified as vernal pools, and those that have.

Department of Environmental Conservation (DEC) River Corridors -
Source: DEC Watershed Management District Rivers Program, January 2015

River corridors are delineated to provide for the least erosive meandering and floodplain geometry toward which a river will evolve over time. River corridor maps guide State actions to protect, restore and maintain naturally stable meanders and riparian areas to minimize erosion hazards. Land within and immediately abutting a river corridor may be at higher risk to fluvial erosion during floods.

River corridors encompass an area around and adjacent to the present channel where fluvial erosion, channel evolution and down-valley meander migration are most likely to occur. River corridor widths are calculated to represent the narrowest band of valley bottom and riparian land necessary to accommodate the least erosive channel and floodplain geometry that would be created and maintained naturally within a given valley setting.

Federal Emergency Management Agency (FEMA) Floodways-
Source: FEMA Floodway included in Zones AE- FEMA Map Service Center

These are areas subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods. A "Regulatory Floodway" means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

State-significant Natural Communities and Rare, Threatened, and Endangered Species-
Source: Vermont Fish and Wildlife, National Heritage Inventory

The Vermont Fish and Wildlife Department's Natural Heritage Inventory (NHI) maintains a database of rare, threatened and endangered species and natural (plant) communities in Vermont. The Element Occurrence (EO) records that form the core of the Natural Heritage Inventory database include information on the location, status, characteristics, numbers, condition, and distribution of elements of biological diversity using established Natural Heritage Methodology developed by NatureServe and The Nature Conservancy.

An Element Occurrence (EO) is an area of land and/or water in which a species or natural community is, or was, present. An EO should have practical conservation value for the Element as evidenced by potential continued (or historical) presence and/or regular recurrence at a given location. For species Elements, the EO often corresponds with the local population, but when appropriate may be a portion of a population or a group of nearby populations (e.g., metapopulation).

National Wilderness Areas-
Source: United States Department of Agriculture Forest Service

A parcel of Forest Service land congressionally designated as wilderness.

Class 1 and Class 2 Wetlands-
Source: Vermont Significant Wetland Inventory (VSWI) and advisory layers

The State of Vermont protects wetlands which provide significant functions and values and protects a buffer zone directly adjacent to significant wetlands. Wetlands in Vermont are classified as Class I, II, or III based on the significance of the functions and values they provide. Class I and Class II wetlands provide significant functions and values and are protected by the Vermont Wetland Rules. Any activity within a Class I or II wetland or buffer zone which is not exempt or considered an "allowed use" under the Vermont Wetland Rules requires a permit.

Class I wetlands have been determined to be, based on their functions and values, exceptional or irreplaceable in its contribution to Vermont's natural heritage and, therefore, merits the highest level of protection. All wetlands contiguous to wetlands shown on the VSWI maps are presumed to be Class II wetlands, unless identified as Class I or III wetlands, or unless determined otherwise by the Secretary or Panel pursuant to Section 8 of the Vermont Wetland Rules.

Possible Constraints

Agricultural Soils -
Source: Natural Resources Conservation Service (NRCS)

Primary agricultural soils" are defined as "soil map units with the best combination of physical and chemical characteristics that have a potential for growing food, feed, and forage crops, have sufficient moisture and drainage, plant nutrients or responsiveness to fertilizers, few limitations for cultivation or limitations which may be easily overcome, and an average slope that does not exceed 15 percent. Present uses may be cropland, pasture, regenerating forests, forestland, or other agricultural or silvicultural uses.

The soils must be of a size and location, relative to adjoining land uses, so that those soils will be capable, following removal of any identified limitations, of supporting or contributing to an economic or commercial agricultural operation. Unless contradicted by the qualifications stated above, primary agricultural soils include important farmland soils map units with a rating of prime, statewide, or local importance as defined by the Natural Resources Conservation Service of the United States Department of Agriculture.

FEMA Special Flood Hazard Areas -

The land area covered by the floodwaters of the base flood is the Special Flood Hazard Area (SFHA) on NFIP maps. The SFHA is the area where the National Flood Insurance Program's (NFIP's) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies.

Protected Lands -

Include State fee land and private conservation lands. Other state level, non-profit and regional entities also contribute to this dataset. The Vermont Protected Lands Database is based on an updated version of the original Protected Lands Coding Scheme reflecting decisions made by the Protected Lands Database Work Group to plan for a sustainable update process for this important geospatial data layer.

Act 250 Ag Mitigation Parcels -

Source: Vermont Department of Agriculture

All projects reducing the potential of primary agricultural soils on a project tract are required to provide "suitable mitigation," either "onsite or offsite," which is dependent on the location of the project. This constraint layer includes all parcels in the Act 250 Ag Mitigation Program as of 2006.

Deer Wintering Areas (DWA)-
Source: Vermont Department of Fish and Wildlife

Deer winter habitat is critical to the long-term survival of white-tailed deer (Odocoileus virginianus) in Vermont. Being near the northern extreme of the white-tailed deer's range, functional winter habitats are essential to maintain stable populations of deer in many years when and where yarding conditions occur. Consequently, deer wintering areas are considered under Act 250 and other local, state, and federal regulations that require the protection of important wildlife habitats. DWAs are generally characterized by rather dense softwood (conifer) cover, such as hemlock, balsam fir, red spruce, or white pine. Occasionally DWAs are found in mixed forest with a strong softwood component or even found on west facing hardwood slopes in conjunction with softwood cover. The DWA were mapped on mylar overlays on topographic maps and based on small scale aerial photos.

Vermont Conservation Design include the following Highest Priority Forest Blocks: Connectivity, Interior, and Physical Landscape Diversity -
Source: Vermont Department of Fish and Wildlife

The lands and waters identified in this constraint are the areas of the state that are of highest priority for maintaining ecological integrity. Together, these lands comprise a connected landscape of large and intact forested habitat, healthy aquatic and riparian systems, and a full range of physical features (bedrock, soils, elevation, slope, and aspect) on which plant and animal natural communities depend.

Hydric Soils -
Source: Natural Resources Conservation Service

A hydric soil is a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part. This constraint layer includes soils that have hydric named components in the map unit.

Regional Constraints

Elevations above 2500 feet-

This constraint uses USGS contours over 2500 feet.

Lake Shore Protection Buffers (250 Foot and 800 Foot in Calais Only)-

For this constraint, CVRPC selected Vermont Hydrologic Dataset lakes and ponds greater than 10 acres and then buffered those by 250 feet and use the Town of Calais Land Use Regulations for shore lands in Calais.

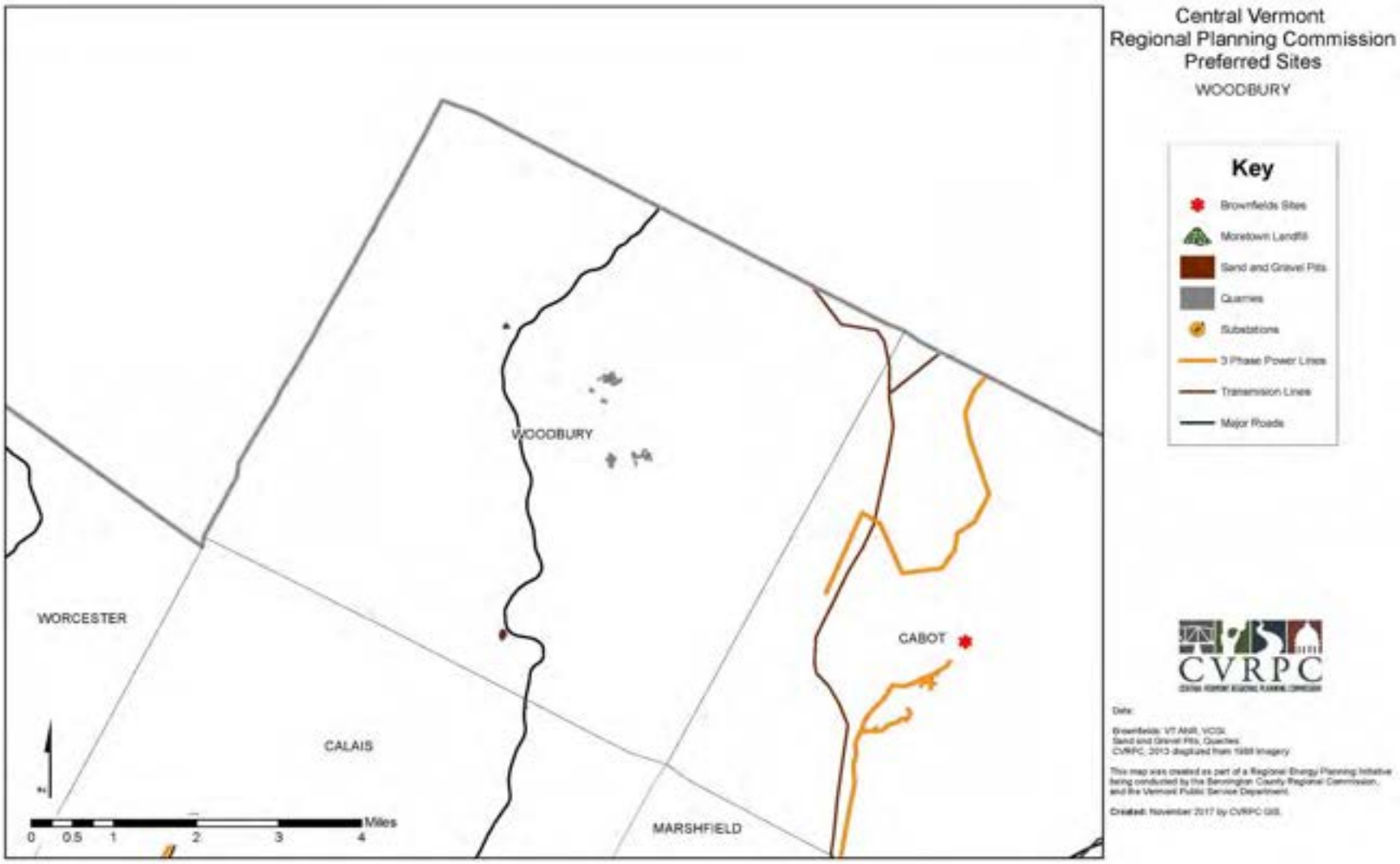
Slopes Greater Than 25%-

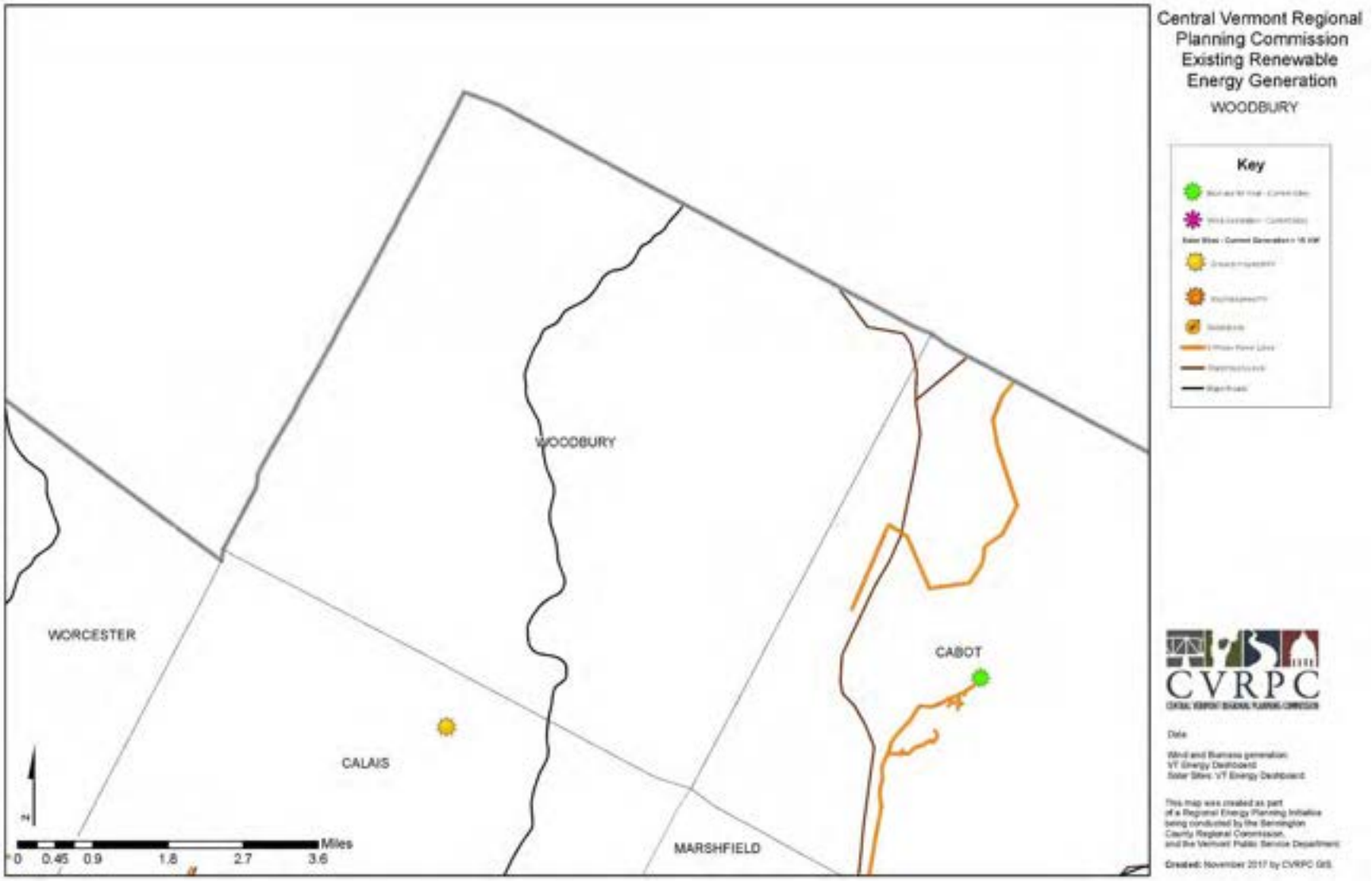
For this constraint, CVRPC performed a slope analysis using a 10-meter Digital Elevation Model.

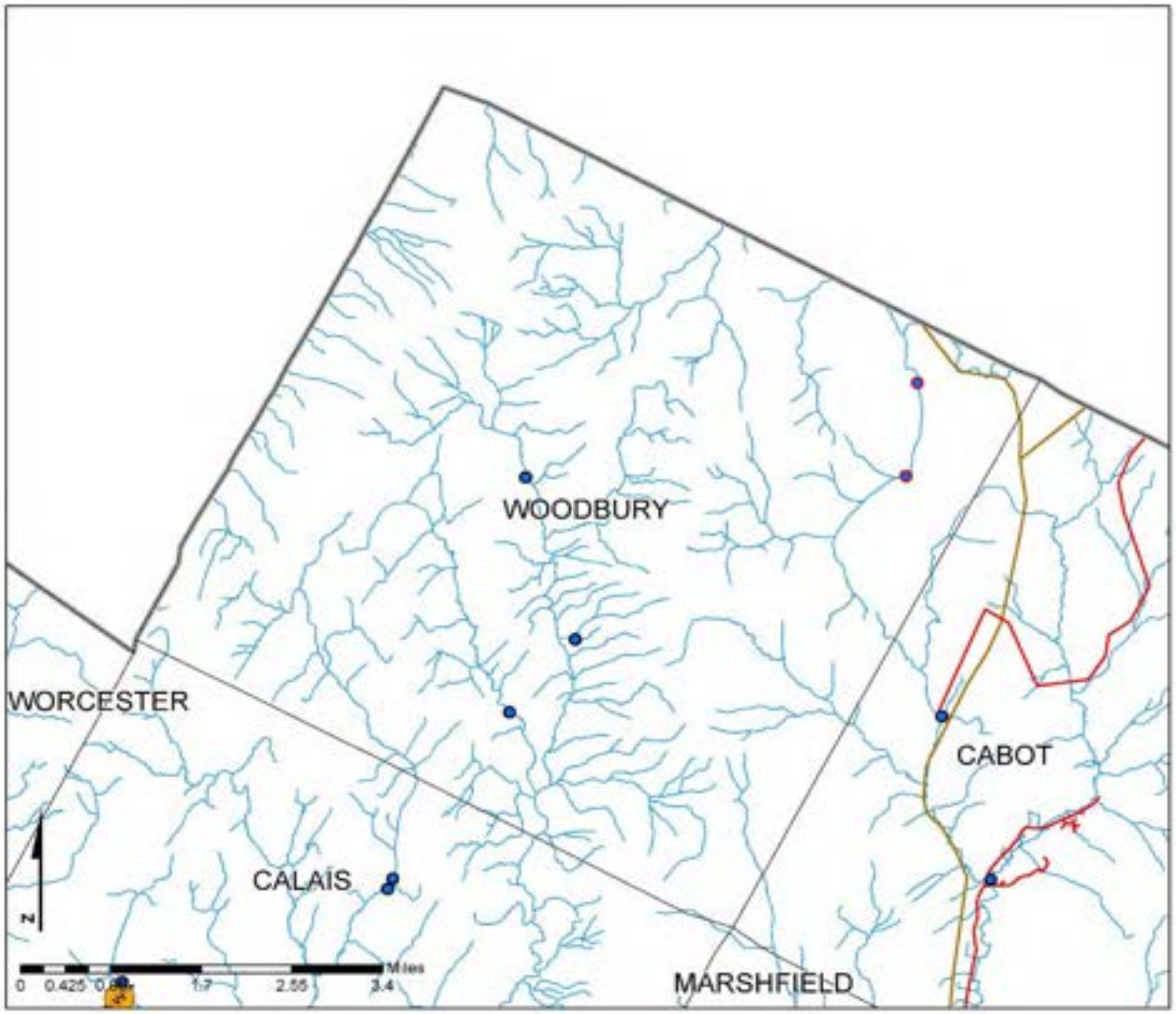
Municipal Lands -

For this constraint, CVRPC used the Vermont Center for Geographic Information's Protected Lands Database.

APPENDIX B MUNICIPAL RESOURCE MAPS




Central Vermont Regional Planning Commission
Existing Renewable Energy Generation
WOODBURY
Key
WOODBURY
WORCESTER
CALAIS
MARSHFIELD
CABOT
CVRPC
Miles
0 0.45 0.9 1.8 2.7 3.6



WOODBURY
Hydroelectric Resources Map

Methodology

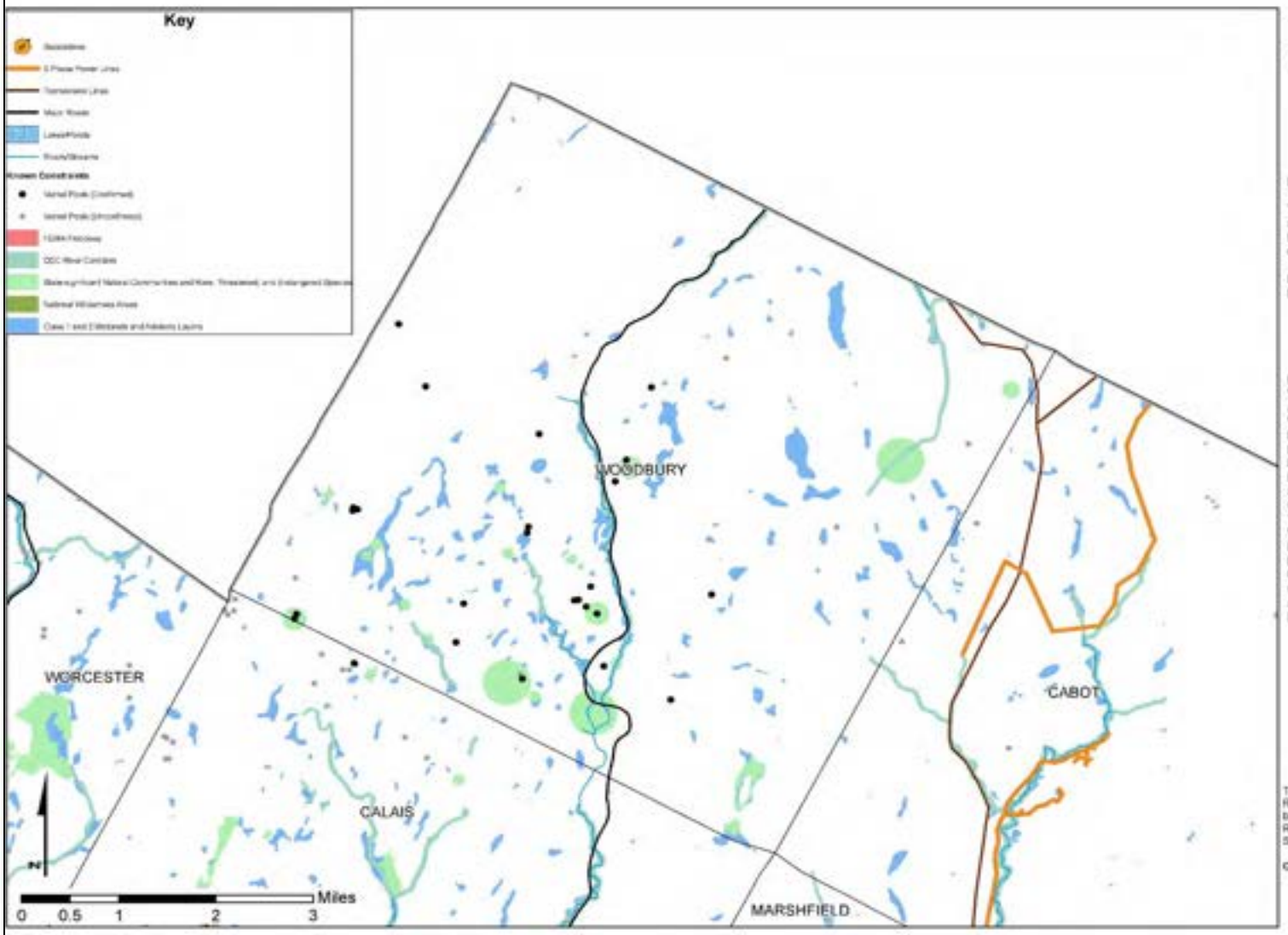
This map shows areas of resource potential for renewable energy generation from hydroelectric , i.e., dams that could be converted in to hydroelectric facilities as well as active hydroelectric sites. Existing hydroelectric dam information was extracted from the Vermont Dam Inventory, while potential hydroelectric sites were derived from a study conducted by Community Hydro in 2007.1 Based on estimates conducted within the report, this map categorizes dams based on their potential hydroelectric generation capacity, and the downstream hazard risk that would be involved in hydroelectric production at each site.

High hazard potential dams are those where failure or mis-operation will probably cause loss of human life. The other rankings were grouped together and their failure or mis-operation results in no probable loss of human life, but could cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns. These dams are often located in predominately rural or agricultural areas, but could be located in areas withpopulation and significant infrastructure.

This map was created as part of a Regional Energy Planning Initiative being conducted by the Bennington County Regional Commission, and the Vermont Public Service Department.

Created: December 2016 by CVRPC GIS.
N:\Region\Projects\2017\Act174_Energy\Hydroelectric Resources 11x17.mxd

CVRPC



WOODBURY
Known Constraints Map

Known Constraints

These constraints signal likely, though not absolute, unsuitability for development based on statewide or local regulation or designated critical resources.

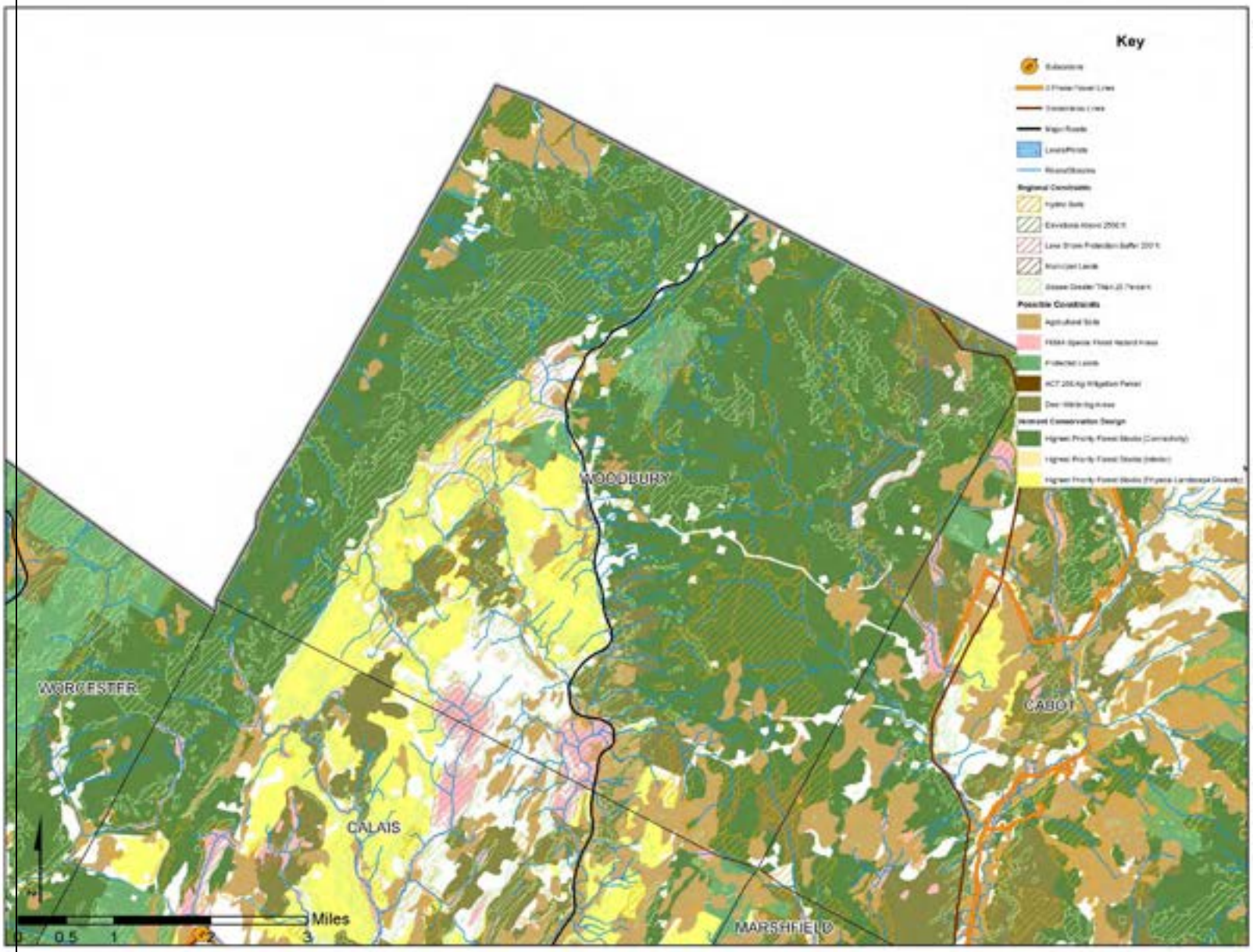
Link to Data -
http://vcgi.vermont.gov/opendata/act174

Known Constraints
Vernal Pools incuding confirmed and unconfirmed -
Vermont Fish and Wildlife
DEC River Corridors -
DEC WSMD Rivers Program 1/2/15
FEMA Floodway included in Zones AE -
FEMA Map Service Center
State-significant Natural Communities and Rare, Threatened, and Endangered Species -
Vermont Fish and Wildlife, Natural Heritage Inventory
National Wilderness Areas -
USDA Forest Service
Class 1 and Class 2 Wetlands (VSWI) and Advisory Layers - VT Watershed Management Division

This map was created as part of a Regional Energy Planning Initiative being conducted by the Bennington County Regional Commission, and the Vermont Public Service Department.

Created: December 2018 by CVRPC GIS.

CVRPC



WOODBURY
Possible Constraints Map

Possible Constraints

These constraints signals conditions that would likely require mitigation, and which may prove a site unsuitable after site-specific study, based on statewide or regional/ local policies that are currently adopted or in effect.

Link to Data - http://vcgi.vermont.gov /opendata/act174

Possible Constraints Data Sources
Agricultural Soils include local, prime and statewide classificarions - NRCS
FEMA Special Flood Hazard Areas include Zones A and AE - FEMA Map Service Center
Protected Lands - Include State fee lands and private conservation lands - VCGI
Act 250 Ag Mitigation Parcels include parcel as of 2006 - VT Dept. of Ag
Deer Wintering Areas - VT Fish and Wildlife
Vermont Conservation Design include the following Highest Priority Forest Blocks: Connectivity, Interior, and Physical Landscape Diversity) - VT Fish and Wildlife
Hydric Soils include soils that have hydric named components in the map unit - NRCS

This map was created as part of a Regional Energy Planning Initiative being conducted by the Bennington County Regional Commission, and the Vermont Public Service Department.

Created: December 2016 by CVRPC GIS.

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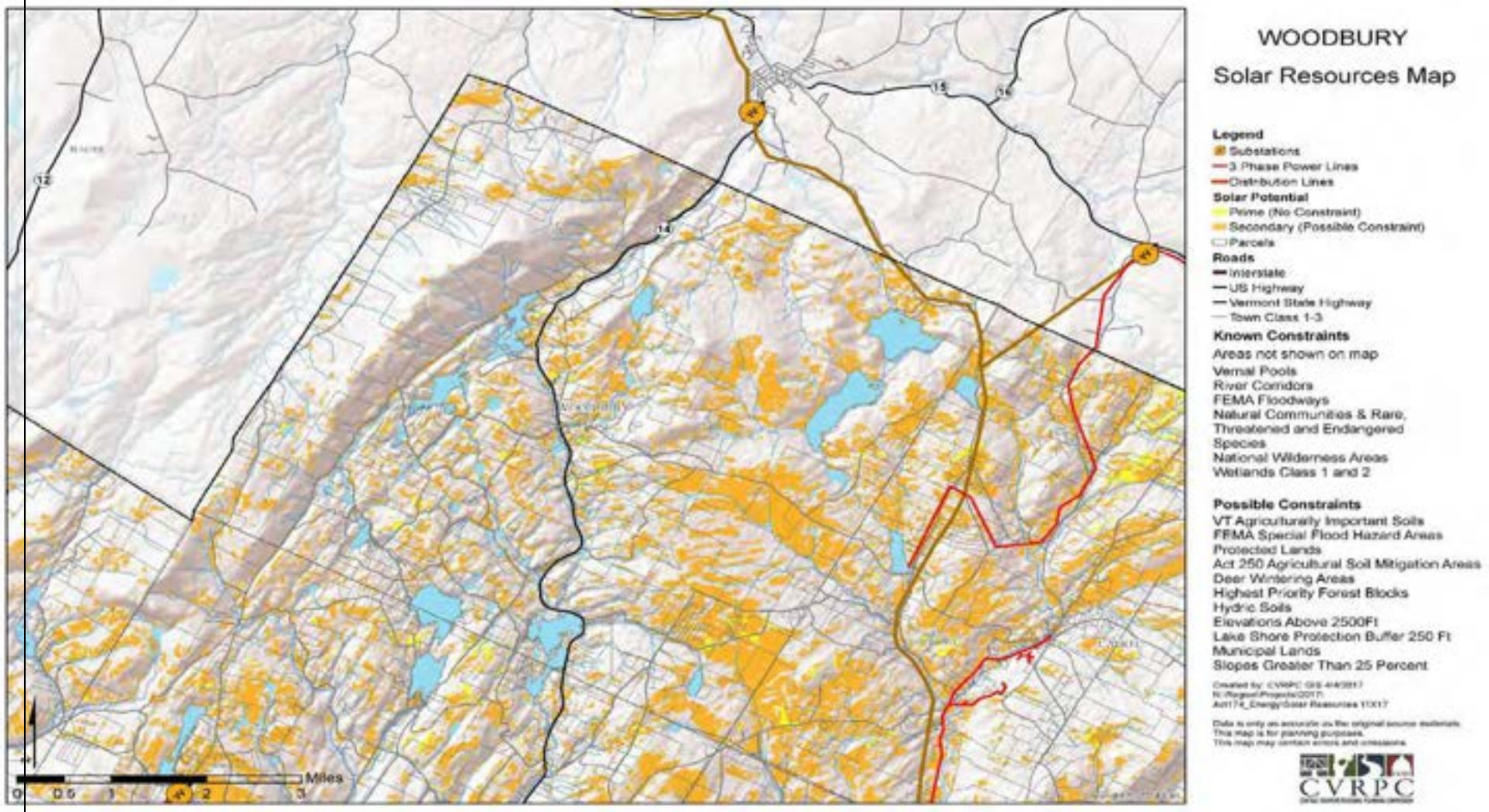
WOODBURY
Solar Resources Map
Legend
Substations
3 Phase Power Lines
Distribution Lines
Solar Potential
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Secondary (Possible Constraint)
Parcels
Roads
Interstate
US Highway
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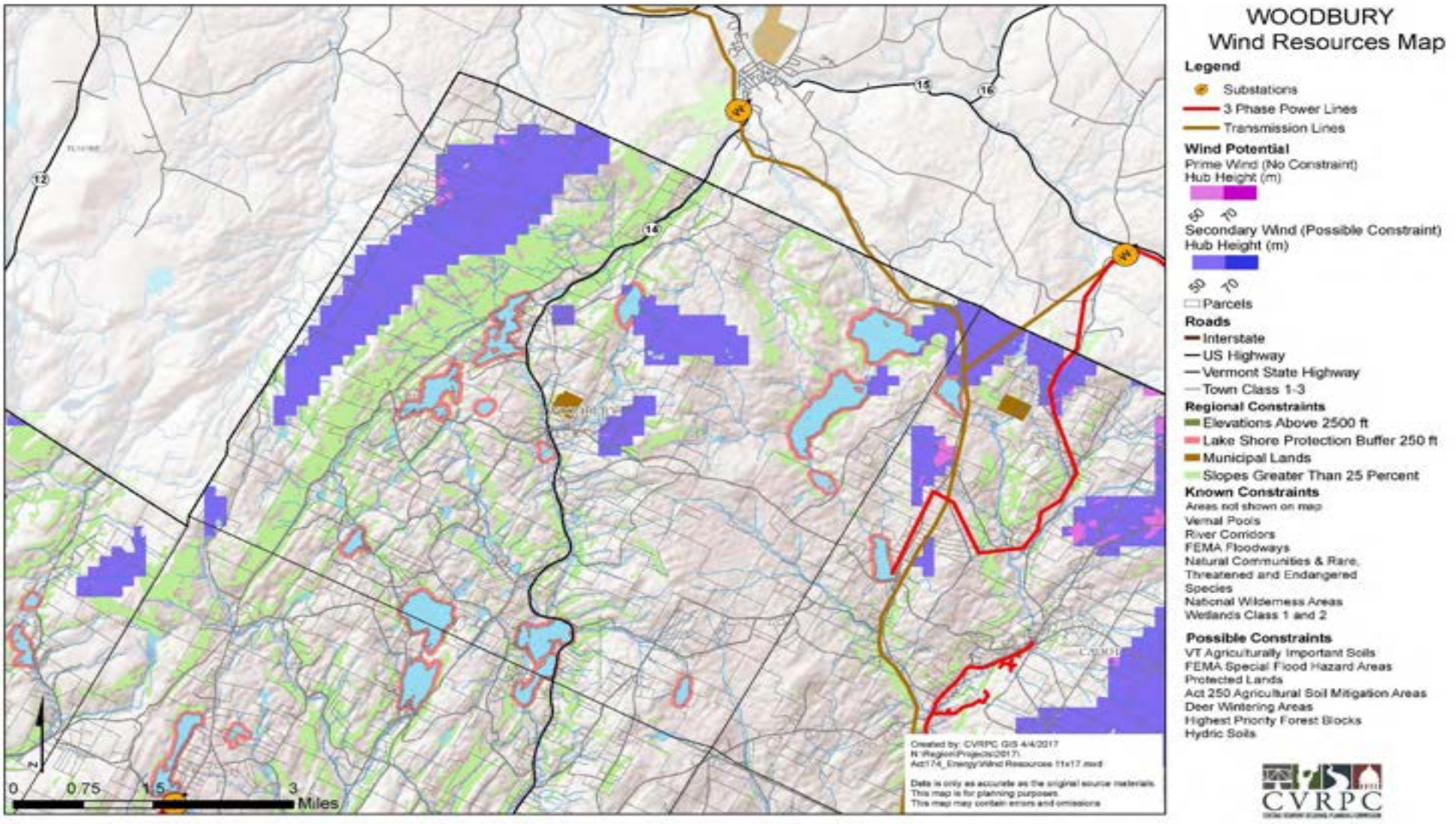
FEMA Special Flood Hazard Areas
Protected Lands
Act 250 Agricultural Soil Mitigation Areas
Deer Wintering Areas
Highest Priority Forest Blocks
Hydric Soils
Elevations Above 2500Ft
Lake Shore Protection Buffer 250 Ft
Municipal Lands
Slopes Greater Than 25 Percent
Miles
0 0.5 1 2 3
CVRPC


WOODBURY
Wind Resources Map
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Hub Height (m)
50
70
Secondary Wind (Possible Constraint)
Hub Height (m)
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70
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Vermont State Highway
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Regional Constraints
Elevations Above 2500 ft
Lake Shore Protection Buffer 250 ft
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Slopes Greater Than 25 Percent
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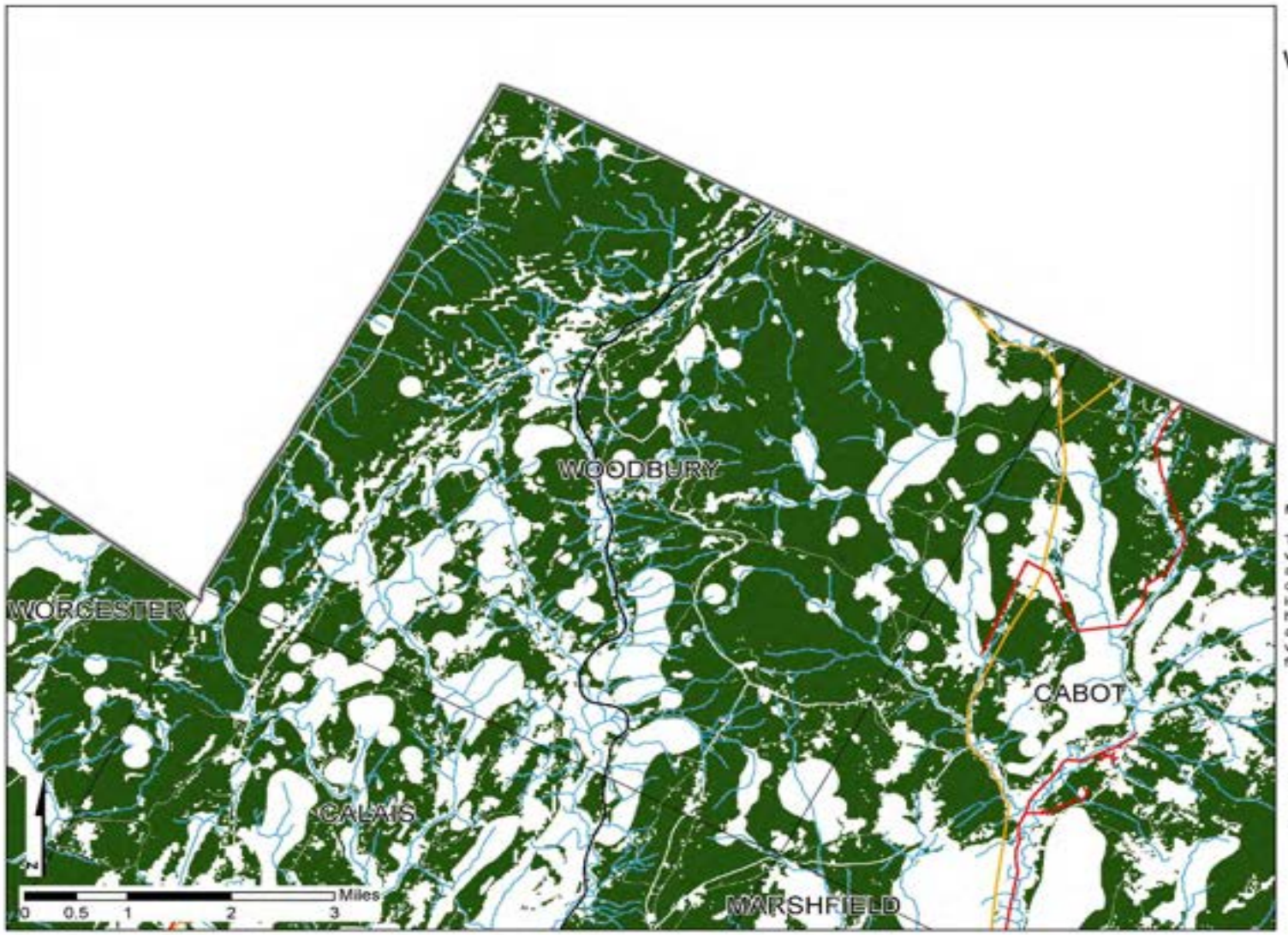
FEMA Special Flood Hazard Areas
Protected Lands
Act 250 Agricultural Soil Mitigation Areas
Deer Wintering Areas
Highest Priority Forest Blocks
Hydric Soils
0
0.75
1.5
3
Miles
CVRPC



WOODBURY
Woody Biomass Resources Map

Key

- Subsations
- 3 Phase Power Lines
- Transmission Lines
- Major Roads
- Lakes/Ponds
- Rivers/Streams
- Woody Biomass

Methodology

This map shows areas of resource potential for woody biomass, i.e., locations where forested areas are. This map also considers various other conditions, such as ecological zones, that may impact the feasibility of renewable energy/alternative heating source. These conditions are referred to as constraints. This map does not include areas where other types of biomass, such as biomass from agricultural residue, could be grown/harvested.

This map was created as part of a Regional Energy Planning Initiative being conducted by the Bennington County Regional Commission, and the Vermont Public Service Department.

Created: December 2016 by CVRPC GIS.

CVRPC

Town & Village of Enosburgh, Vermont Comprehensive Municipal Plan 2020

Prepared by the
Enosburgh Planning Commission

Adopted by the Town Selectboard on April 20, 2020

Acknowledgements

Prepared by the Enosburgh Planning Commission:
Shaleigh Draper, Chair
Pat Hayes, Vice Chair
Kelee Maddox, Secretary
Rick Clark
Steve Comeau
Michael Gervais

Thanks to the many residents of Enosburgh who contributed their time and input to the creation of the Plan by taking the Community Survey, offering comments and attending public meetings.

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Visions for the Future of Enosburgh

The following visions serve as a guideline for the future of Enosburgh. These visions are reflective of the input received by the Planning Commission in the surveys and public meetings.

- *The preservation of the character of Enosburgh and the protection of our natural resources will remain foremost in the plan for the growth of the Community.*

- *The rural character of Enosburgh is defined by its focus on agriculture, forest resources, and scenic vistas.*

- *A commitment to our children, families, land, water, and natural beauty will continue to make our community a special and unique place to the year-round residents as well as to our tourists and visitors.*

- *The provision of varied recreational opportunities is vital in promoting the community's quality of life.*

- *Community character will be a factor in the businesses that look towards Enosburgh as not only a good location for their business, but also as a place that offers a good way of life for their employees.*

- *Encouraging environmentally sound, clean businesses, new technology, home-based businesses, and enhancement of our tourist trade will lead to a more stable tax base and help in reducing dependence on residential property taxes.*

- *Encouraging diverse agricultural practices will help maintain the rural landscape of the community and help the local economy.*

- *Our young people should have employment opportunities and the ability to live near their families which can strengthen the family unit.*

- *New development in Enosburgh should occur at a rate which does not exceed Enosburgh's ability to accommodate population growth and the ability to provide essential services. The majority of new housing and commercial development is encouraged in the Village of Enosburg Falls.*

Chapter 1: Purpose

Why plan?

The primary purpose of any plan is to be a guide for the achievement of goals. In our personal lives this could entail financial planning, retirement planning, or planning for next months' vacation. In principle, town plans are no different. In very basic terms, a town plan is a community statement describing where you came from, where you are now, and where you want to go in the future.

Land use, the focus of town planning, impacts the world in a myriad of ways. Each development has cultural, environmental, and economic costs and benefits that need to be weighed by the community. Is there enough space available in the elementary school to accommodate the additional children from more residential development? How can we conserve our best agricultural lands without unnecessarily taking away peoples' property rights? These are the kinds of questions that can be addressed in town plans.

> ***What is a Municipal Plan?***
> *The Municipal Plan evaluates data and trends relating to growth and development, village character, the provision of facilities and services, and compatibility with adjacent municipalities and the region, identifies goals and policies to guide community decision making, and sets forth an implementation program.*

Vermont municipalities are not required to plan, but most do – to protect community interest, to retain local control, to promote desired forms of growth and development, to target public investment, to protect scarce public resources, and build and sustain a sense of community.

How are municipal plans used?

There is a range of ways in which a town plan can be used, from simply a source of information to a foundation for regulations. The community itself determines what is important and how it will be used.

At the most basic level the document can be used to catalogue what is known about the municipality. This collection of information could serve to familiarize residents, potential residents, and development interests about Enosburgh and its resources. Good information is essential to wise decision making whether for municipal planning or investing in a home, farm, or business.

The plan may also be used to evaluate development proposals for conformance with the Enosburgh's goals and policies. Determination of a specific project's conformance, or otherwise, with the municipal plan is one method of participating in the Act 250 process.

Municipalities that have adopted plans are eligible for certain State planning grants. In most cases, planning grants require a municipal plan to be adopted. This money can be used to update zoning bylaws, conduct feasibility studies for projects, or purchase development rights of a parcel of land.

Beyond this purpose, the Enosburgh Municipal Plan serves as the legal basis for land use regulations and capital budget programs, which the municipalities may wish to adopt. Municipal plans, in general, state community goals and chart the course while zoning or capital budgets are the vehicles to get there.

The Enosburgh Municipal Plan was developed with the following purpose in mind: to guide municipal officials, residents, and persons contemplating actions involving land use on matters of land development, the economic provision for facilities and services, resource use and conservation, and public health, safety, and welfare.

What is required in a plan?

Under current law, a municipality must address twelve (12) elements in their plans, which are the following:

- A statement of objectives, policies, and programs of the municipality to guide the future growth and development of land, public services and facilities, and to protect the environment;
- A land use plan;
- A transportation plan;
- A utility and facility plan;
- A statement of policies on the preservation of rare and irreplaceable natural areas, wildlife habitat and habitat connectors, and scenic and historic features and resources;
- An educational plan;
- A recommended program for the implementation of the objectives of the development plan;
- A statement indicating how the plan relates to development trends and plans for adjacent municipalities, areas and the region developed under this title;
- An energy plan;
- A housing element that shall include a recommended program for addressing low and moderate income person's housing needs;
- An economic development element that describes present economic conditions and identifies policies, projects, and programs necessary to foster economic growth; and
- A flood resiliency plan.

These represent minimum requirements required by Title 24 Chapter 117 (the Vermont Municipal and Regional Planning and Development Act).

How does the planning process work?

A municipal plan is arrived at by: identifying community issues and needs; collecting and analyzing background information about the community; and combining them into a vision (statement) of how the community should develop. Goals, policies, and actions or recommendations are formulated to address specific elements such as land use, housing, or education.

The need for involvement of residents in the planning process cannot be overstated. While it is the responsibility of the Planning Commission to develop the plan, citizens and citizen committees can have an active role in gathering information and formulating plan policies for

guiding development. A better plan will be the result of a group effort. Without the participation of residents, the balancing of needs, values, and resources can be difficult to achieve.

Finally, planning is a continuous process, and plans can be amended to meet new challenges or situations. The Plan must be updated every five years or it expires. This provides opportunity for citizen involvement, and it acts as a review of the effectiveness of the Plan and its policies.

Jurisdiction.

Enosburgh —as it is referred to within this plan and as it exists in the minds of residents—is a single, unified community that includes both a chartered Town and incorporated Village. For political purposes, both the Town of Enosburgh and Village of Enosburg Falls are independent, sovereign municipalities under state statute. The Town is governed by a five-member Board of Selectmen; the Village is governed by a five-member Board of Trustees. Each board has the authority to execute administrative, legislative and quasi-judicial functions within its respective municipal boundaries. Historically, across the state and region, many incorporated villages were established for the purposes of creating municipal water and light districts. It was to this end that the Village of Enosburg Falls was incorporated in 1888, more than 100 years after the Town was chartered in 1780.

While the Town and Village remain separate political entities, they share many public services and governing functions and are working towards the same goals with respect to economic development, residential growth, energy conservation, environmental protection and farmland conservation. This is the basis for the creating a **unified plan** developed by a **joint, municipally-appointed Planning Commission**. The Enosburgh Planning Commission is delegated this responsibility jointly by the Town Selectboard and Village Trustees to plan for all of Enosburgh. Members of the Planning Commission include residents of the village and town. Ultimately, residents of the town frequent businesses and public facilities within the village, while residents of the village likewise enjoy the scenic character and rural amenities available throughout town. Citizens do not identify as a resident of one municipality over the other, but rather as residents of Enosburgh—singularly.

In the past, the local planning process involved maintaining separate municipal plans for the Town and Village. However, in recognition of the long-term vision for prosperity and sustainability shared by all Enosburgh residents, the Planning Commission, Selectboard and Village Trustees agreed to establish a single, comprehensive plan for the community. Going forward, this unified document will be updated with input from both municipalities to promote consistent, community-wide development goals for all of Enosburgh.

Role of the Enosburgh Planning Commission.

The Planning Commission is empowered to formulate goals and objectives toward plan development. The Commission is responsible for the review and revision of the Municipal Plan and to propose amendments to the zoning bylaws and regulations in an effort to implement the plan.

The role of the Commission is ongoing. Changing community conditions, preferences and priorities call for consistent monitoring of plan objectives. Amendments to the plan may, from time to time, be necessary and the Commission has responsibility for this task.

Past Planning Efforts and Citizen Participation.

Municipal Plans are intended to be "living" documents which have been, and will continue to be, updated many times to reflect the ever-changing conditions in Enosburgh. The 2020 Enosburgh Municipal Plan builds on the previous plans and furthers the effort to maintain a strong, vibrant community.

Enosburgh has led many efforts to gain citizen participation and input to inform current and prior municipal plans. The Village conducted community surveys in 2002 and 2007 and the Town conducted a survey during the 2001 plan development; these efforts were aimed at gathering input to provide guidance on specific planning issues. In 2003, the Vermont Council on Rural Development sponsored an Enosburg Community Visit, which was an expansive opportunity for a community wide discussion on overcoming challenges and achieving community goals. Many of the priority challenges and opportunities are still relevant today although significant progress has been made.

The 2014 Enosburgh Plan is a result of a planning process initiated in the summer of 2013. This planning process began with the formation of a Town and Village joint Planning Commission. The Planning Commission reviewed the similarities and differences between the two municipal plans and developed a combined draft plan to address them. A survey was conducted in March 2014 and more than 70 Enosburgh residents responded to the survey and provided the planning commission with valuable input on their goals and visions for the community. Residents were invited to participate in regular joint planning commission meetings and at the April 2014 meeting to review the survey results; Front Porch Forum is used to keep residents informed of the status of plan.

The 2019 Enosburgh Plan is an update to the 2014 Enosburgh Plan that includes adding current data, updates to comply with Vermont statutory changes, including an enhanced energy chapter, editing policies and implementation strategies based on progress and new information and incorporating the Vital Village master planning effort. The 2019 Vital Village master plan involved a robust community engagement program related to village revitalization, physical streetscape improvements, access to the Missisquoi Valley Rail Trail and economic development.

The Structure of the Enosburgh Municipal Plan.

The Enosburgh Municipal Plan is divided into 14 chapters that address both the required elements Act 200 and other key areas of concern. Each subject is then addressed in detail including past conditions, current status, and future needs.

Based on the findings in the discussion, one or more goals are then developed for the subject. **Goals** can be defined as “the desired future condition” although some may not be attainable for many years. For example, the goal for education is “to provide high quality, broad-based educational services for the people of the community.”

Policies are those features that describe how to attain our goals, are a guide for homeowners and developers, and a means for the Planning Commission to evaluate projects. For example, "ensure that rapid development will not inflict undue impacts and hardships upon the ability of the municipality to provide adequate educational services."

The following action to then implement the goals and policies are the **Recommendations;** these statements extend beyond that of the Planning Commission to incorporate the communication and cooperation of municipal staff, partner organizations (schools, economic development groups) and residents to achieve the outcome. For example, "Consider applying for grant funds, such as the Community Development Block Grant, for renovation or rehabilitation of buildings for housing or economic development."

Authority.

Vermont municipalities are authorized to prepare and adopt a Municipal Plan via Chapter 117, Title 24 of the VSA (Vermont Municipal and Regional Planning and Development Act). Section 4382 of the Act dictates what needs to be included in a plan. The intent of the law is to encourage a municipality to "engage in a continuing planning process that will further several stated goals." The Act further states that municipal plans shall be re-examined, updated, and re-adopted every five years. This process should be ongoing, whereby the Plan is continually reassessed and revised to meet the changing needs of the community. Consequently, there will be future opportunities to review and amend the Plan. Residents, community groups, and anyone with an interest are encouraged to provide input into this ever-continuing process to the Enosburgh Planning Commission.

Goals, Policies and Recommendations.

GOALS

- To create a document that represents the collective vision of the Enosburgh community for the future.

POLICIES

- Encourage citizen involvement at all levels of the planning process.
- Ensure that decisions having local impacts are made at the most local level possible and with local input.
- Continue to represent and advocate local interests, as time and resources permit, through participation in regional, state, and federal planning, legislative efforts, and/or regulatory proceedings that may affect Enosburgh and the interest of its residents.
- Participate as a statutory party in state Act 250 proceedings as appropriate.

Chapter 2: Community Profile

The Town of Enosburgh is located in the northwestern part of the State of Vermont in Franklin County and is bordered by seven towns: Montgomery to the east; Richford to the northeast; Berkshire to the north; Franklin to the northwest; Sheldon to the west; Fairfield to the southwest; and Bakersfield to the south. Enosburgh covers a total of 30,925.29 acres or approximately forty-eight square miles. Enosburgh is around 20 miles to the City of St. Albans, the regional growth center, and approximately 45 miles from the City of Burlington, Vermont's largest City.

Population.

Past and Present Population.

In the year 1800, shortly after being settled, Enosburgh had 143 persons. Figure 2.1 shows how the population for Enosburgh has changed since that year. The Town experienced its greatest population boom between 1800 and 1840 when the population climbed to 2000 residents. Between the years 1840 and 1980, the population remained steady with only slight fluctuations around 2000 persons. In 1990, the population rose above the 2500 mark for the first time (2535) and by 2000 the population had reached 2788 where it has generally remained in 2017 (2758).

Figure 2.1. Population of Enosburgh, VT 1800-2017

Source: Vermont Indicators Online, U.S. Census Decennial and American Community Survey

Table 2.1 shows the population for Enosburgh Town, Enosburg Falls, and all of the bordering communities. Between 1960 and 2017, the population of Enosburg Falls did not add additional population, while the population of Enosburgh Town more than doubled. Between 2000 and 2017, Enosburgh experienced a population loss of 30 people despite previously gaining population between 1980 and 2000. All of the surrounding communities experienced population growth between 2000 and 2017.

Table 2.1. Population of Enosburgh and Surrounding Communities, 1960-2017							
Year	**1960**	**1970**	**1980**	**1990**	**2000**	**2010**	**2017**
Enosburg Falls	1,321	1,266	1,207	1,350	1,473	1,329	1,306
Enosburgh Town	645	652	863	1,185	1,315	1,452	1,452
Enosburg Falls & Enosburgh Town	1,966	1,918	2,070	2,535	2,788	2,781	2,758
Montgomery	876	651	681	823	992	1,201	998
Richford	2,316	2,116	2,206	2,178	2,321	2,308	2,458
Berkshire	965	931	1,116	1,190	1,388	1,692	1,711
Franklin Town	796	821	1,006	1,068	1,268	1,405	1,411
Sheldon	1,281	1,481	1,618	1,748	1,990	2,190	2,317
Fairfield	1,225	1,285	1,493	1,680	1,800	1,891	1,899
Bakersfield	664	635	852	977	1,215	1,322	1,230
Franklin County	29,474	31,282	34,788	39,980	45,417	47,746	48,816
Source: Vermont Indicators Online, U.S. Decennial Census, 2013-2017 American Community Survey							

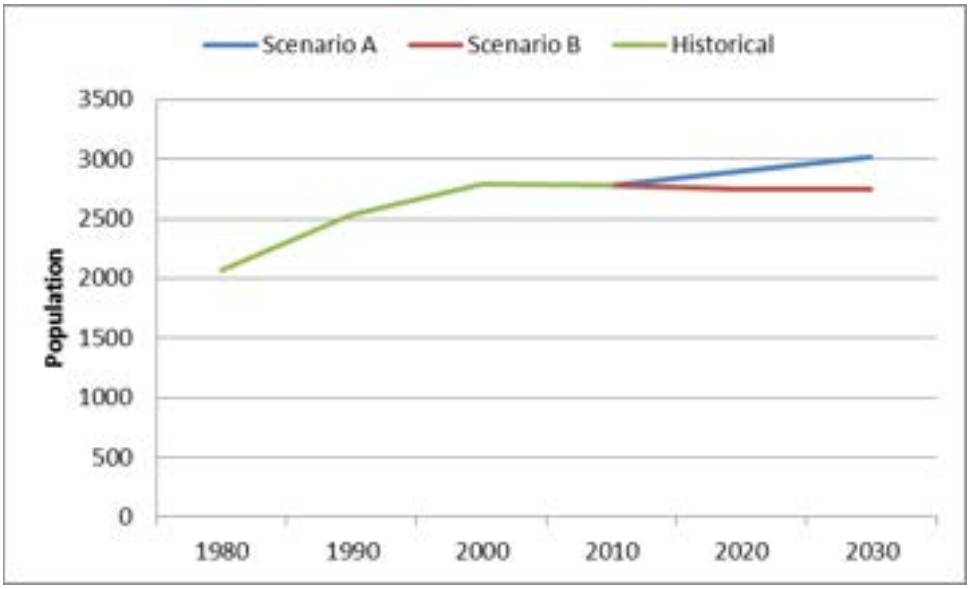
Table 2.2 shows the percent change within each decade for Enosburgh Town, Enosburg Falls, and Franklin County from the year 1960 to the year 2010, and the percent change from 2010 to 2017. Though many residents (47.4%) live in the Village of Enosburg Falls, the majority of population growth in recent decades has occurred outside of the Village. From 1980-2017, the Village population grew 8.2%, while the population outside of the Village grew by 68.3%. There is evidence to indicate that this growth is slowing in the Town perhaps because the best development sites have now been used. The growth of the Village in the 1980's simply replaced the losses found in the previous decades.

Table 2.2. Population Change in Enosburgh, VT 1960-2017						
% Change	**1960-1970**	**1970-1980**	**1980-1990**	**1990-2000**	**2000-2010**	**2010-2017**
Enosburg Falls	-4.2%	-4.7%	11.9%	9.1%	-9.8%	-1.7%
Enosburgh Town	1.1%	32.4%	37.3%	11.0%	10.4%	0.0%
Enosburg Falls & Enosburgh Town	-2.4%	7.9%	22.5%	10.0%	-0.3%	-0.8%
Franklin County	6.1%	11.2%	14.9%	13.6%	5.1%	2.2%
Source: Vermont Indicators Online, U.S. Census, 2013-2017 American Community Survey						

Projected Populations.

The small size of the population base makes long-term forecasting difficult especially at the local level. The projections shown here were developed by the Vermont Agency of Commerce and Community Development based on the 2010 Census data. Figure 2.2 shows the population projections for Enosburgh and for Franklin County through the years 2020 and 2030. Two projections are shown: Scenario A and Scenario B. Scenario A is based on higher economic growth and in-migration patterns that were seen in the state from 1990 to 2000. Scenario B is based on lower economic and in-migration patterns that were seen in the state from 2000 to 2010. Scenario A shows the population of Enosburgh increasing from a 2010 population of 2,781 to a 2030 population of 3,020. However, Scenario B sees the population of Enosburgh decreasing slightly from 2,781 in 2010 to 2,750 in 2030. As of 2017, Enosburgh total population has decreased to 2,758 suggesting that Scenario B, in which Enosburgh would have a total population of 2,753 by 2020 may be more likely than the growth predicted in Scenario A. New population projections will be developed based on the 2020 Census data and will provide a more updated future population projection.

Figure 2.2. Enosburgh Population 2020 and 2030 Projections



Source: Vermont Agency of Commerce and Community Development

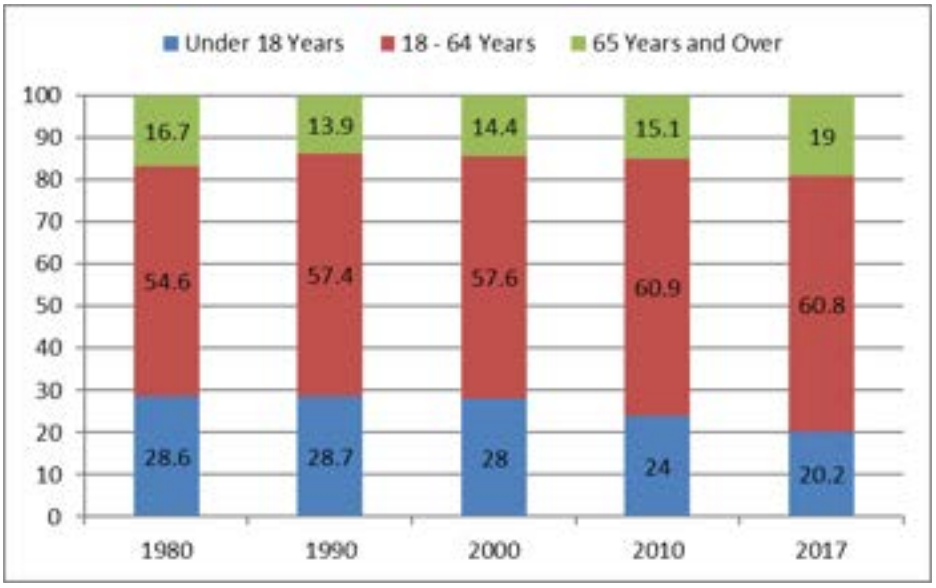
Age Distribution.

Table 2.3. Median Age of Population 2017					
Median Age (yrs)	**1980**	**1990**	**2000**	**2010**	**2017**
Enosburgh	32.0	33.1	36.9	40.0	43.0
Franklin County	28.9	31.7	35.7	39.6	39.9
State of Vermont	29.4	33.0	37.7	41.5	42.8
Source: U.S. Decennial Census, U.S. American Community Survey					

The median age in 2017 for the residents of Enosburgh was 43.0 years, up from 36.9 years in 2000. This is similar to the State of Vermont's median age of 42.8 years and higher than Franklin County's median age of 39.9 years. Enosburgh, Franklin County, and the State of Vermont have all seen an increase in their median ages since 1980.

Figure 2.3 shows the percent of population for the different age groups for Enosburgh. Enosburgh saw a drop in its under eighteen population in 2010 and 2017. The percentage of population between the ages of eighteen and sixty-four increased slightly from 2000 to 2010, but stayed stable from 2010 to 2017. The elderly population has increased by 3.9% since 2010; in 2017 the percent of the population 65 or older is higher in Enosburgh (19%) than Franklin County (14.5%) and the State (17.5%).

Figure 2.3. Age Distribution of Enosburgh Residents



Source: Vermont Indicators Online, U.S. Decennial Census, 2013-2017 American Community Survey

Special Populations.

The 2013-2017 American Community Survey provides information about the number of people with various levels and types of disabilities. Enosburgh has a slightly greater percentage of people with disabilities than Franklin County, but a similar percentage of people to the state overall. As of 2008, the census categorizes disabilities into six categories: hearing, vision (blind or having serious difficulty seeing, even when wearing glasses), cognitive, ambulatory (mobility), self-care difficulty, and independent living difficulty.

Table 2.4. Percent of the Non-Institutionalized Civilian Population with a Disability in 2017				
% of Persons with a Disability	Total	Persons 5-17 Years	Persons 18-64 Years	Persons 65 Years & Over
Enosburgh	13.2%	1.2%	10.3%	37.6%
Franklin County	12.4%	4.9%	10.7%	33.96%
Vermont	14.2%	7.2%	11.8%	33.1%

Household & Household Types.

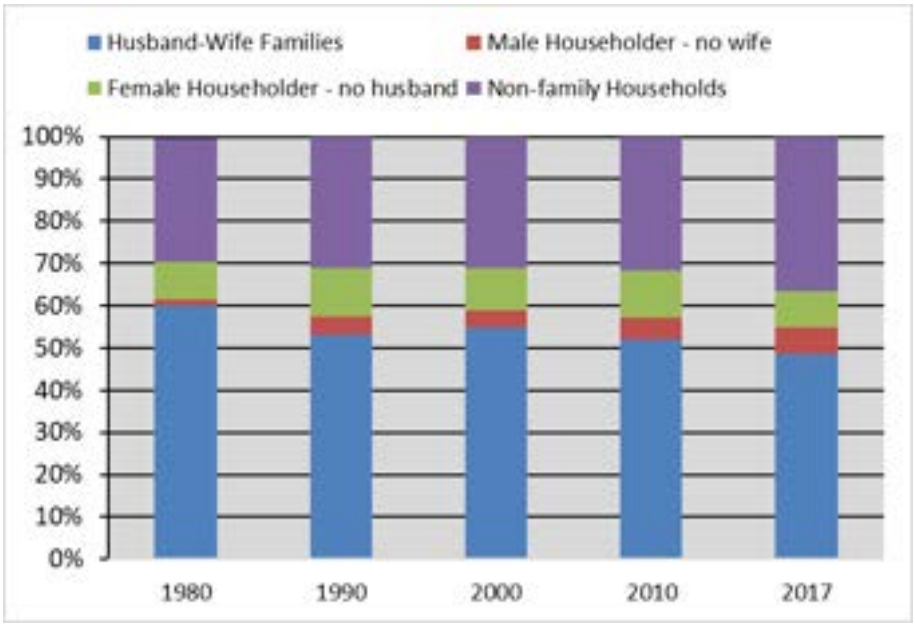
The way the population groups itself into households affects the demand for housing, community services, and employment. Figure 2.4 shows the percentages of households in Enosburgh from 1980 – 2017. While the number of households continues to grow (Table 2.5), the distribution of household types remained very similar. Enosburgh continues to have a high percentage (just under 50%) of traditional (husband-wife) households.

Table 2.5. Change in Total Number of Households	
Year	Total Households
1980	783
1990	979
2000	1058
2010	1108
2017	1,128

Education Level.

In 2017, 87.9% percent of Enosburgh residents were high school graduates or higher while 90.7% of Franklin County residents and 92.3% of Vermont residents overall were high school graduates or higher. The community also had a lower percentage of people with a Bachelor's degree than either the County or the State. Table 2.6 shows the percentages of residents who attained high school diplomas and levels of higher education in 2000 and 2017.

Figure 2.4. Types of Households in Enosburgh



Source: U.S. Decennial Census, 2013-2017 American Community Survey Community Survey

Table 2.6. Level of Educational Attainment				
	% with a High School Diploma or Higher		% with a Bachelor's Degree or Higher	
	2000	2017	2000	2017
Enosburgh	75.3	87.9%	10.5	18.3%
Franklin County	82.0	90.7%	15.3	24.7%

Table 2.6. Level of Educational Attainment				
	% with a High School Diploma or Higher		% with a Bachelor's Degree or Higher	
	2000	2017	2000	2017
Vermont	86.0	92.3%	27.0	36.8%
Source: US Census 2000; American Community Survey 2013-2017				

Income and Economy.

According to the 2013-2017 U.S. American Community Survey, most of the employees in Enosburgh worked in manufacturing and in the educational, health and social services. Prior to 2000 agriculture and forestry had previously been one of the top employment sectors in Enosburgh. As of 2017, only 6% of Enosburgh residents are employed in this industry. The percentage of persons employed by industry can also be seen in Figure 2.5.

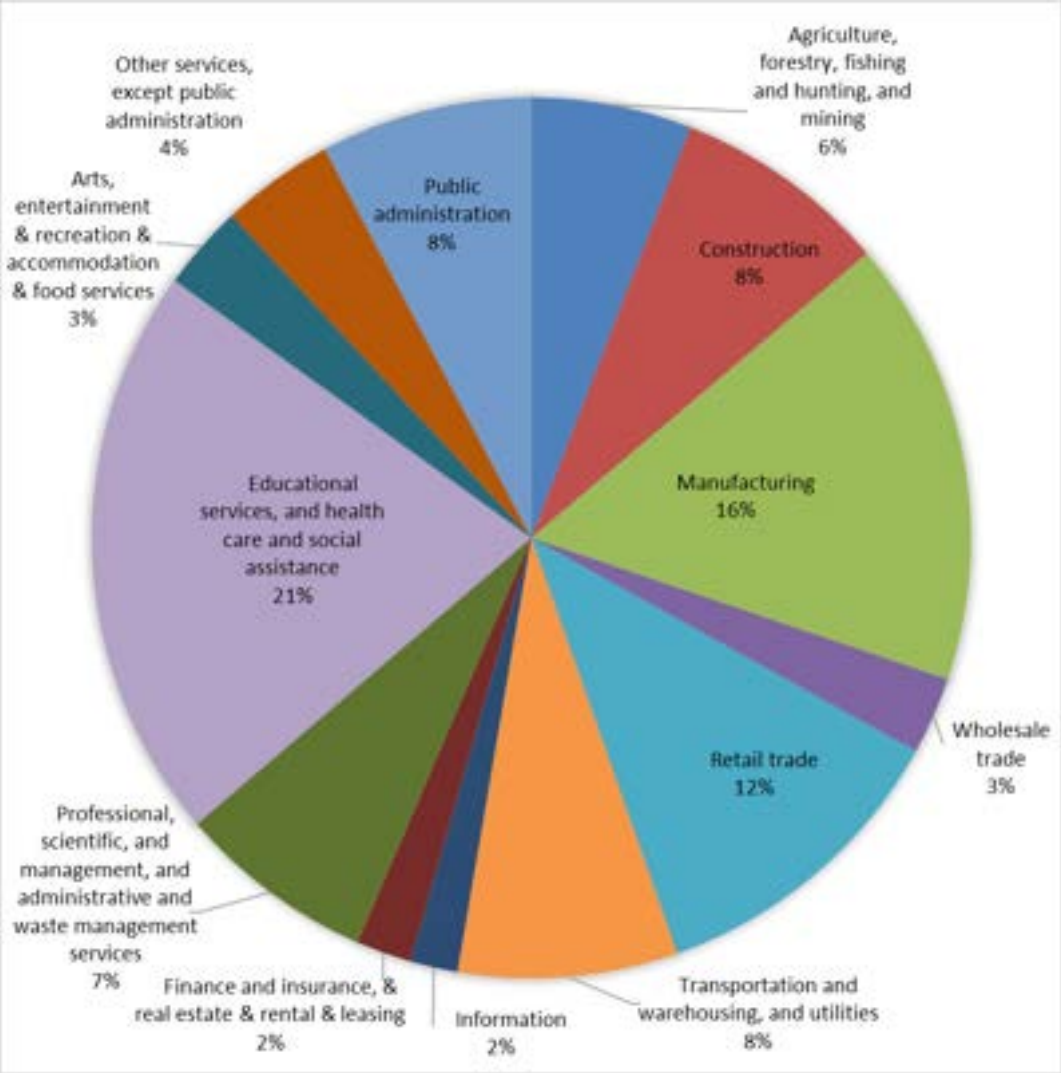


Figure 2.5. Enosburgh Residents' Employment by Industry

In 2017, 19.2% of employed Enosburgh residents worked in Enosburgh while another 43% worked elsewhere in Franklin County. The most common destinations for work outside of

Enosburgh were St. Albans town, St. Albans City, Richford, Berkshire, Swanton and Highgate. Of all those employed in Enosburgh, 21.7% were Enosburgh residents while 53.3% were residents of other Franklin County municipalities.

Figure 2.6. Enosburgh Worker Inflow/Outflow

Source: U.S. Census OnTheMap 2017

The median household income in 2017 for Enosburgh of $54,900 is below the median incomes for both Franklin County ($62,214) and the State of Vermont ($57,808) (Table 2.7). While median household income for Enosburgh did increase steadily between 1979 and 2017, both the county and the state saw greater increases. Enosburgh had a decline in the percent of the population living below the poverty line in 1999; however, in 2011 this number elevated to near the 1989 level. Since 2011, the percent of the population living below the poverty line has declined by 3.3%. Enosburgh continues to have a greater percentage of those living below the poverty line than either Franklin County or the State of Vermont.

Table 2.7. Median Household Income and Percent of All Families with Income Below the Poverty Level

	Median Household Income ($)					% of all persons living below the poverty level			
	1979	1989	1999	2011	2017	1989			
Enosburgh	12,174	22,872	33,683	48,835	54,900	17.1	11.4	16.3	13.1
Franklin County	14,025	28,401	41,659	55,181	62,214	10.2	9.0	10.2	8.0
Vermont	14,790	29,792	40,856	53,422	57,808	9.9	9.4	11.3	11.4

Table 2.7. Median Household Income and Percent of All Families with Income Below the Poverty Level

	Median Household Income ($)					% of all persons living below the poverty level
	1979	1989	1999	2011	2017	1989

Source: US Census of Population 1980-1990, American Community Survey 2007-2011 and 2013-2017

Chapter 3: Historic, Archaeological, and Scenic Resources

Early Years.
The first Vermonters were most likely residents of the Lower Missisquoi watershed. Around 12,000 years ago, when prehistoric people first settled the area, much of the land in the region was submerged under the Lake Champlain Sea. The earliest known human settlements in the state are along the margins of what used to be the Champlain Sea. This margin is along the western side of the watershed, reaching as far east as St. Albans and the Highgate area.

Between 10,000 years ago, when the Champlain Sea receded, and 350 years ago, when European colonists displaced native populations, the residents of the region based their choice of home turf upon environmental factors. Archeological research indicates that likely sites were within 200 feet of surface water of any kind, having a gentle slope and moderate or well-drained soils. These are the areas that are most likely to contain archaeological remains of Enosburgh's early inhabitants.

Early Settlement and Government.
The Town of Enosburgh was granted May 12, 1780 and chartered May 15 of the same year by Governor Thomas Chittenden to Major General Roger Enos. General Enos was the father of Ira Allen's wife Jerusha and he served as one of Benedict Arnold's officers in the invasion of Canada.

The first proprietors' meeting was held on September 8, 1795 at Joseph Baker's house in neighboring Bakersfield. Stephen House and Amos Fassett were granted permission to "pitch" 400 acres of land (survey, cut lumber, and build saw and grist mills) as compensation for building the Town's first mills. Construction began in 1797 and by 1800 a sawmill, gristmill, and tannery were in operation on the Tyler Branch in West Enosburgh.

Of equal importance was the arrival of the Township's first permanent residents. They are believed to have been the Balch family which spent the winter of 1796-1797 on the site of the present Fernand St. Pierre farm. Otherwise, most of the proprietors came periodically to work their land but returned to their homes south of Enosburgh for the winters. Soon, other settlers arrived and the population of the Town began to grow. Among the first permanent settlers were Amos Fassett, Stephen House, and Samuel Little. Amos Fassett is probably the only one of the first settlers to have direct descendants still living in Enosburgh. As the population grew, so did the need for government.

Until June of 1799, proprietors' meetings continued to be held in either Bakersfield or Cambridge. The first proprietors' meeting held in Enosburgh was at the home of Amos Balch. It was not until March 19, 1798 that the first town meeting occurred. That year residents met at the home of Samuel Little at the Center and several officials were chosen. The most notable local official was Dr. Eliphaz Eaton, who for years served the community as a physician and town clerk and later went on to be elected as Governor of Vermont (the highest public office attained to date by a resident of Enosburgh).

The Vanishing Frontier.
In the early days, the forested hill regions rather than the river lowlands were thought to be the best farmland. Consequently, the Center area, Cold Hollow foothills, and the uplands of the Township's southeastern corner were the first to be settled.

As the first settlement, Enosburgh Center would remain for many years the most important of the Town's numerous villages. It had been a logical location for a first settlement because of its location on the so-called Boston Post Road. Not only was it the only road in town, it was also the direct route between Boston and Montreal. It was here that the Town's founders voted to lay out lands for a parade ground donated for public use. Local industry included a potash and pearlash works, a comb factory, a harness shop, a tailor shop, and a blacksmith shop. The two ever-present institutions of frontier towns, the tavern and school, were run by the Little family. Samuel Little kept the first tavern while Betsey Little kept the first school. The first post office in the Town was established in 1803. By 1870, the Center contained twenty or so buildings, including two churches, a district school, the Academy (or Town House that was used for Town functions), a hotel known as the Central House (run by John Spooner), and a general store.

Although the upland areas were preferred by Enosburgh's earlier settlers, the Township soon had several thriving smaller villages and hamlets. They included West Enosburgh (then called Jacksonville), North Enosburgh, Samsonville, East Enosburgh (then called Stoneville), West Hill, and Bordoville. Each had its own small businesses, stores, mills, post offices, and schools. West Enosburgh was the site of the first mill in Town; North Enosburgh became known as the "Gateway to Canada" because of its location; Samsonville was noted for a wooden dam built across the river that gave the area the name "the Upper Falls" because it provided hydro power for several mills and even an electric plant; East Enosburgh had a creamery to which many local farmers brought their milk; West Hill, on the eastern side of Enosburgh Mountain, evolved from dense forest in 1800 to open farmland in 1900. It is now almost completely back to forest. Bordoville, located in the southwest corner of Town, was a small hamlet with a grocery store, a school, and a post office. It was named for the Bordeau families who built the Seventh Day Adventist Church there in 1864. By century's end, all of the smaller villages and hamlets would be eclipsed by the Village of Enosburg Falls.

Schools, Post Offices, and Churches in the 1800's.
During the 1800's, Enosburgh was divided into seventeen school districts with various lots or farms assigned to each. Each of the hamlets had a school as did the areas known as Sand Hill, Trout River, the Woodward Neighborhood, the Wright District, the Perley Neighborhood, the Austin district, and Enosburgh Mountain. As Enosburg Falls became more and more the center of activity, these schools gradually closed and in 1955 all students came to the consolidated school at Enosburg Falls. A brick high school building was built in 1907 and, in 1954, a separate elementary school was built. There have been additions to each since then, plus the building of the Vocational Center building in 1980-1981.

There were six post offices scattered among the hamlets of Enosburgh during the 1800's. The first was at Enosburgh Center, and later, others were established at West Enosburgh, North Enosburgh, East Enosburgh, Bordoville, and Enosburg Falls. These were often in homes or stores and all except for Enosburg Falls gradually closed.

The first church was the Enosburg Center Congregational Church built between 1820 and 1821. The Town of Enosburgh has had eleven churches at one time or another since then which were scattered among the hamlets.

Above: West Enosburgh Methodist Church built in 1883. Right: Enosburg Falls Methodist Church built in 1870.

The Township's Changing Economy.

The small farms of the early frontier had supplemented their incomes by producing potash from wood ashes (used in fertilizers and soap production) until the market for it dwindled after 1815. In spite of that, the number of farms continued to grow with the 1850 census counting 190 farms in the Township. Although most were small, isolated, and subsistence based, they produced a variety of products including butter, cheese, and maple sugar. Sheep were also quite plentiful at that time and wool was the major cash product. The more perishable products were sold locally while some of the wool was sold at more distant markets. Things were to remain as such until the construction of the Region's first railroad in 1870.

The Region's first railroad was constructed between St. Albans and Richford. The effect on Enosburgh was considerable. With the railroad, distances between Enosburgh and faraway markets shrank. It also brought new goods and services to Enosburgh and saw the expansion of agricultural production increase. By the mid 1900's, the area became known as the "Dairy Center of the World." Dairy farming blossomed into the important industry it is today. New efficient transportation to markets now made it possible for sales of fluid milk as well as large amounts of butter and cheese to expand. As a result, the Town prospered and what had earlier been the little Village of Enosburg Falls grew quickly and had become the dominant center of commerce in the Township. The railroad line has since become the Missisquoi Valley Rail Trail; a 26.4-mile year-round recreation trail for use by residents and visitors alike.

Located at the southwestern corner of the Township along the banks of the Missisquoi River, Enosburgh Village quickly secured its place as the commercial hub to a thriving agricultural community. By being located along the river which provided a suitable site for hydropower, and on the main rail line between St. Albans and Richford, the Village could easily serve its growing population.

In 1883, Charles Ovitt (who owned a mercantile and milling business in West Enosburgh) built the first telephone line in Enosburgh in order to keep track of the railroad schedule. He eventually established a telephone company and in 1906 built the Northern Telephone Building on Main Street. During that same period Dr. B.J. Kendall (a doctor in Enosburgh) developed his famous Spavin Cure for horses. His business's success would have a profound effect on Enosburgh's development.

The Village of Enosburg Falls was incorporated in 1888 as one of the smallest village populations in the state. Shortly after this, a high school was built behind the site of the present high school. The Enosburg Grade School was established in 1890, and by 1900 ranked among the best in the state.

An Influential Development

The growth of Enosburgh is traceable from the establishment of one particular company and the completion of the Missisquoi Valley Railroad in the early 1870's. The B.J. Kendall Company, established in 1870, produced hogsheads of patent medicine for the cure of horse spavin. The Kendall Company was located in the northwestern corner of the Town near the railroad, which helped influence the area to become the center for business and residential development. The Kendall Company served as an engine for rapid growth in the Village, and contributed significantly to the community's social as well as its physical growth.

Today.

Enosburgh today reflects its history in its predominately agricultural character, lifestyle, and economy. The small subsistence farms have been replaced by larger dairies with modern

equipment. More haying can be done in a day by one person with modern machinery than many workers could do in a week years ago. The love of the land and the ability to earn a living from it are still central values in the community. Descendants of the early settlers and farmers, and a steady stream of newcomers intermingle to make up the structure of the Town today.

Historic Resources.

Historical cultural and archaeological resources are irreplaceable resources which provide a sense of continuity between the past and the present and help us identify who we are. It is important to preserve and promote these resources whenever possible.

The state historic survey lists 3 districts of historic significance in Enosburg Falls: the Downtown Historic District, the Historic Railroad District and the Orchard Street-North Main Street Historic District. The Enosburgh Historical Society is active in promoting the preservation of historic resources in the Town and Village and has pursued state and national designation for local properties and presented programs to educate and inform the public about local history. Table 3.1 below lists sites on the State Register of Historic Sites. See Appendix B for maps of Village historic districts and sites listed below.

Table 3.1. State Register of Historic Sites in Enosburg Falls

Name of Site	Map Reference	Site Number
Aseltine & Greenwood Block	Map 1, #7	0603-13
B.J. Kendall House	Map 3, #16	0603-6
Carmi Marsh House	Map 3, #45	0603-4
Catholic Church	Map 2, #76	0603-18
Dr. William Hutchinson House	Map 3, #15	0603-8
Dr. A.J. Darrah House	Map 1, #4	0603-10
Enosburg Falls High School	Map 1, # 10	0603-20
Enosburg Falls National Bank	Map 1, #3	0603-11
Kendall's Spavin Cure Building	Map 3, #43	0603-1
Masonic Hall	Map 1, #8	0603-15
Merrill Block	Map 1, #44	0603-14
Methodist Church	Map 1, #84	0603-19
Moses Perley House	Map 3, #17	0603-5
Northern Telephone Company Building	Map 1, #42	0603-3
Old Post Office	Map 1, #13	0603-16
Olin Merrill House	Map 3, #3	0603-9
Opera House	Map 2, #7	0603-2
Original Spavin Cure Building	Map 3, #16A	0603-7
Perley Block	Map 1, #6	0603-12
Silver Auction House	Map 1, #38	0603-17

Source: Vermont Historic Sites and Structures Survey for Enosburg, 2008.

There are six places that include buildings and bridges listed on the National Register of Historic Places:

- Billado Block (371 Main Street)

- Bridge 12 (Boston Post Road)
- Enosburg Congregational Memorial Church (Town Highway 2)
- Enosburg Opera House (31 Depot Street)
- Hopkins Covered Bridge (Town Road over Trout River)
- Kendall, Dr. B. J., Company (228 North Main Street)

Not included in the Register is the Region's historic settlement pattern of small villages and hamlets, located along well-traveled routes, surrounded by an open, working landscape. This pattern strongly evokes the Region's 19th century agrarian heritage, and contributes much to its particular sense of place and community. The Enosburg Telephone Company formed in 1895 when a line was built from Enosburg Falls to West Enosburg, Enosburg Center, and East Enosburg. The central office and exchange were maintained in Enosburg Falls. This building is now the home of County Currier.

Above: The Opera House (Photo Credit: Janice Geraw).

There are two historical markers in Enosburgh and Enosburg Falls. In Enosburgh there is a marker on the Town Green recognizing the birthplace of Larry Gardner, a baseball player. In 2019 a historic marker was added to 123 Depot St. in Enosburg Falls to provide information about the Enosburg Opera House.

The Opera House, built in 1892, still functions as the center of numerous community activities. It is one of the most commodious and handsome public halls in the state. The Opera House is now owned by the Village and Town and is on the National Register of Historic Places. The Town Selectboard appointed a special committee to seek grants and other funding, while also overseeing the restoration of the facility. To date, remarkable progress has been accomplished with the restoration program.

Smaller landscape features such as stone walls, old barns, outbuildings, corner stones, markers, trees, and old apple orchards and lilac bushes planted around former homesteads, all have historic value and importance. Recognizing the need for more public education on the preservation of these historic features, the Vermont Department of Forests, Parks, and Recreation published in 1994 *Stonewalls and Cellar Holes: A Guide for Landowners on Historic Features and Landscapes in Vermont's Forests*.

Scenic Resources.

Enosburgh's contribution to the northwest region of Vermont is an extremely rich visual assortment of diverse landscapes, from the sweeping agricultural views west as far as the Lake Champlain islands, to the heavily wooded slopes of the Green Mountains in the east. It is the visual language of the area which plays an important part in how a community is perceived.

Scenic highways and corridors link natural, cultural, and scenic resources to the historic landscape of the area. The visual character of Enosburgh makes it an excellent place to live. The most panoramic views are of the Cold Hollow Mountains, Jay Peak, Mount Mansfield, and other smaller mountains. Enosburgh, like all other towns, should take steps to preserve the scenic vistas that exist virtually everywhere in the State.

One of Enosburgh's most scenic treasurers, the waterfalls, are hidden to many tourists, friends, and Rail Trail users traveling through the Town and Village who are not familiar to the area. One of the falls is located at the current site of the Bridge of Flowers and Light. Originally, a wooden covered bridge spanned the Missisquoi River on this spot but was removed in July of 1915, and replaced with a cement arch bridge. In 1969, a 245-foot-long bridge was constructed just north of this location and the cement bridge was closed due to deterioration of the structure. In the 1990's the Village decided to preserve the bridge given its unique design as a sand-filled arch bridge and it was rehabilitated and converted into a pedestrian bridge. This bridge is known as the Bridge of Flower and Lights. Community members and visitors are invited to stroll along the bricks and view the falls; the bridge provides a spectacular view any time of year.

Above: The Falls and Bridge of Flowers and Light (Photo Credit: Janice Geraw).

The Planning Commission supports efforts to promote the bridge and falls as a scenic destination for visitors. Recent projects have been completed to this end. In 2018, the Diesel #1 Generator Building adjacent to the bridge's entrance was rehabilitated and converted to a history exhibit. This building is now open and staffed with volunteers during village events. In 2019, the Conservation Commission worked with Cold Hollow Career Center students to construct and install an informational kiosk at the site. Additionally, in 2019 the Village received grant funds from the Vermont Quick Build for Health program (Vermont Department of Health) to install a kiosk at the Missisquoi Valley Rail Trail intersection, which provides wayfinding to the Bridge of Flowers and Light.

Goals, Policies and Recommendations.

GOALS

- Protect and preserve the archaeological, historic and scenic features in Enosburgh for future generations.
- Ensure that new development is sensitive to the historic architecture and development patterns.

POLICIES

- Encourage participation and documentation of structures which qualify for the National Historic Registry.
- Promote community growth that maintains the land use pattern developed throughout the Town's history – densely settled villages separated by open agricultural land.
- Encourage the adaptive reuse of historic buildings.
- Encourage innovation in design and layout of development so that the impact of development on scenic vistas can be minimized.
- Support the efforts of the Enosburgh Historical Society in protecting the historic character and buildings of the community and in informing the public about local history.
- Ensure that the historic integrity of the Enosburgh Opera House is protected in perpetuity.

Chapter 4: Natural Features

The natural areas of Enosburgh are important for environmental, ecological, scenic, educational, and recreational uses. The critical or important natural areas include wetlands, flood hazard areas, important wildlife and/or endangered species habitats, and other biological, hydrological, or geological areas.

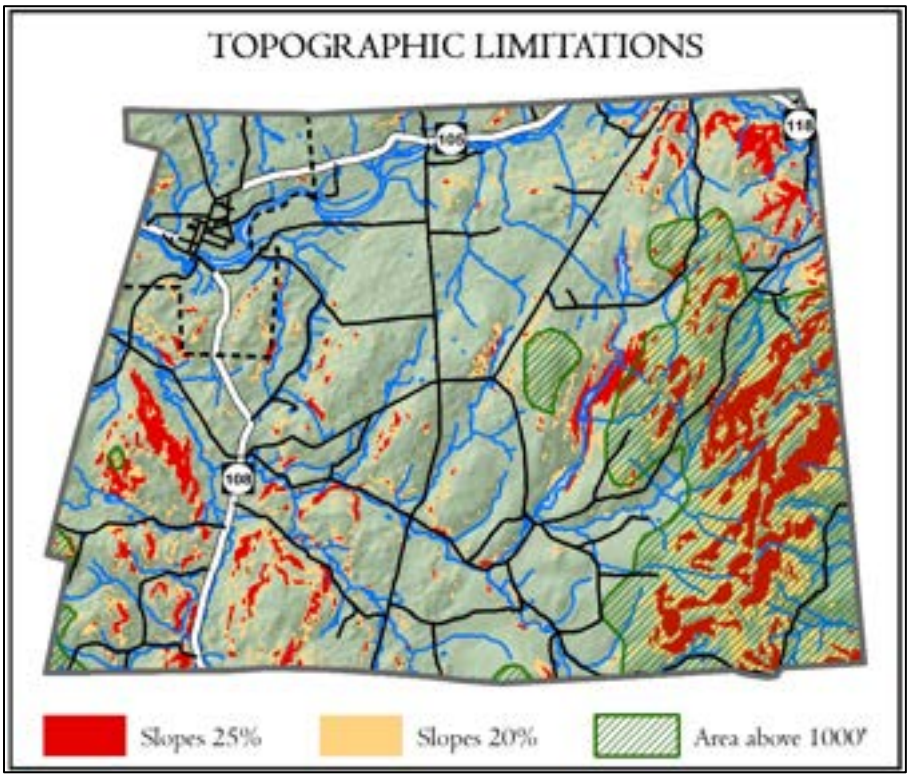
Topography.
Upland areas (areas of 1,000 feet or more in elevation) include a good majority of the Northwest Region of Vermont. These areas include most of the Region's more prominent mountains, hilltops, and ridge lines. Many of these are highly visible from public vantage points and contribute significantly to the Region's scenic beauty. These areas also include drainage divides, steep slopes, shallow soils, and exposed, fractured bedrock. These areas are important for upland drainage and groundwater recharge. They also support wildlife habitat, forestry, and outdoor recreation but they generally prevent all but low-density development. For decades, Vermont has established an upper limit for development at 2,500 feet. Areas above this elevation are typically slower to recover from disturbance and are at greater risk to erosion. All development activities, including forestry operations, require an Act 250 permit above 2,500 feet. While the highest elevation in Enosburgh is around 2,100 feet, elevation is an important component to consider in relation to the use of the land.

Enosburgh lies primarily in the Central Highlands physiographic region where the terrain is characterized by broad valleys and rolling hills. The Village lies in the Missisquoi River Valley at 426 feet above sea level as the settlement pattern of the village initially conformed to the meandering curves of the Missisquoi. For the most part, settlement in the Town has occurred at lower elevations, along roads and less than 1,000 feet (see Map 4.2). There are a few areas in Enosburgh where development above 1,000 ft has occurred, mainly along Longley Bridge Road and Woodward Neighborhood Road, and Enosburgh Mountain Road.

Slope conditions (the steepness of the land measured in number of feet of vertical rise over 100 feet of horizontal distance) are a major factor in determining the land's capacity for use and development. The Natural Resources Conservation Service (NRCS) provides general guidelines for assessing slope limitations and are provided in Table 4.1. However, the capacity of any particular site must be evaluated considering the interaction of slope with other features such as soils, vegetation, and the proposed land use.

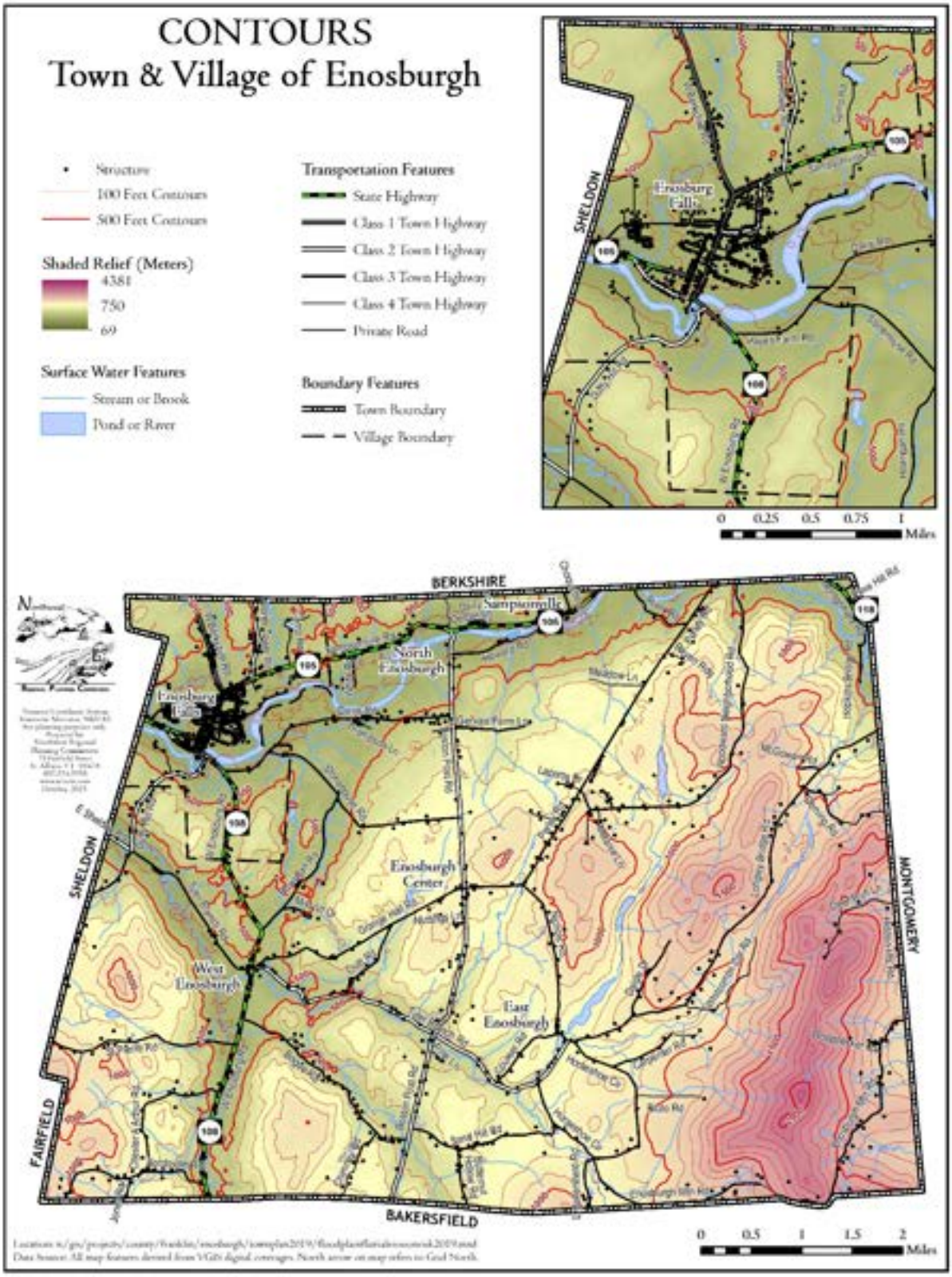
Table 4.1. Slope Classifications	
0-3%	Suitable for most development but may require drainage improvements
3-8%	Most desirable for development, least restrictions
8-15%	Suitable for low-density development with particular attention given to erosion control, runoff, and septic design
15-20%	Construction costly, erosion and runoff problems likely, unsuitable for on-site septic systems
>20%	All types of construction should be avoided, careful land management for other uses is needed

Map 4.1 identifies areas with topographic limitations; this includes those parts of town with slopes greater than 20 percent. These areas impose limitations on residential development, due to conventional septic rules established by the Department of Environmental Conservation (DEC). Unlike lands above 2,500 feet, there is no state regulation of steep slopes, other than DEC septic and wastewater system permitting rules.



Map 4.1. Topographic Limitations.

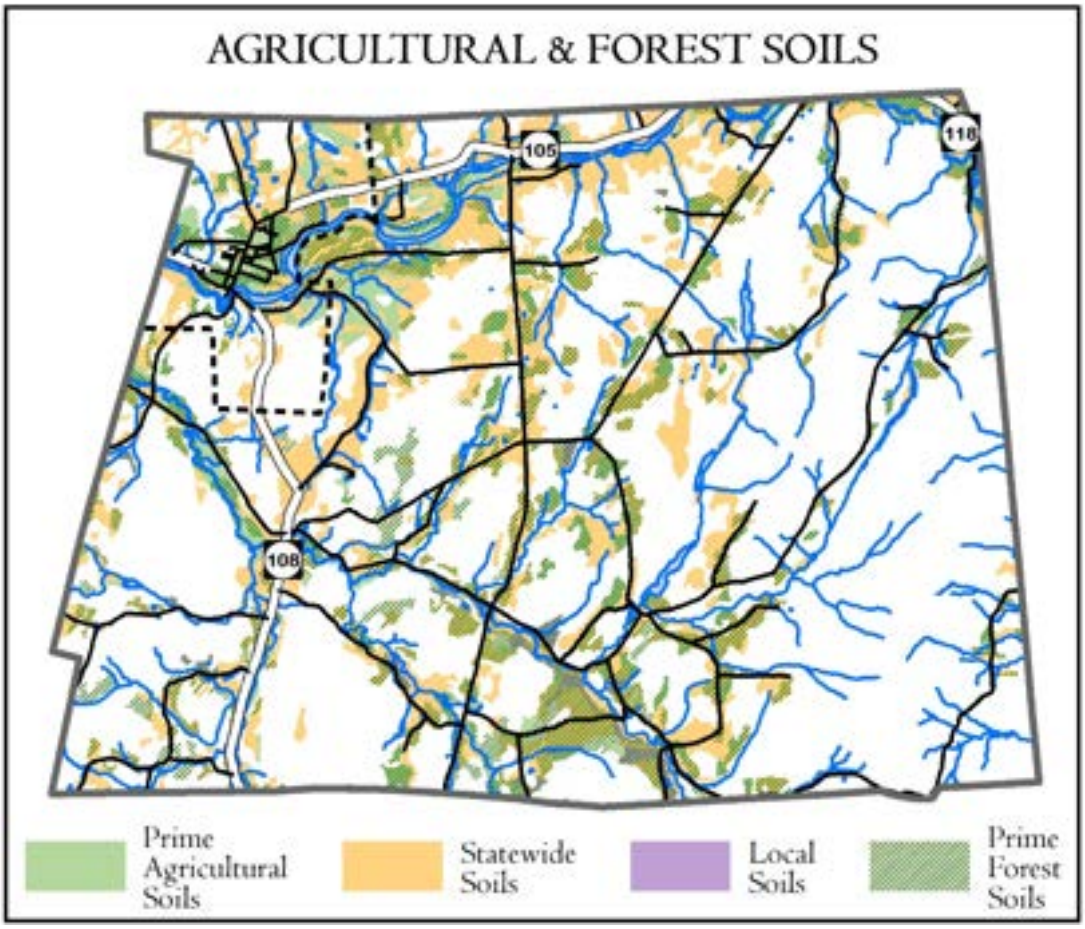
Photo: The Cold Hollow Mountains as seen from Enosburgh.



Map 4.2. Community Settlement Patterns and Land Contours.

Soils.

Soils are the most important environmental factor that governs the use of land in rural areas. Soils are classified on the basis of structure, form, composition, and suitability for various types of development. Four characteristics are of primary concern when doing land use planning: bearing capacity, erodibility, drainage, and resource value. The community's agriculture depends upon the availability of high-quality soils in large, adjoining parcels to allow for economical hay and field production. The latest soil survey in Franklin County was completed by the Natural Resource Conservation Service in 1998.



Map 4.3. Prime Agricultural and Forest Soils

Enosburgh is home to soils that formed in water-deposited material on terraces and old lake plains and also to soils that formed in glacial till in the Green Mountains and on uplands. They are generally deep, moderately well drained to poorly drained, silty and clay soils. Where slope and drainage are favorable, these are classified as Prime Agricultural Soils (Map 4.3). Agricultural soils are considered a non-renewable resource and it is important to consider measures to conserve them. The most common soil associations that are found in Enosburgh are the Woodstock-Tunbridge outcrop association, Peru-Stowe association, Cabot-Westbury association, Munson-Buxton-Belgrade association, and the Windsor-Missisquoi association.

Woodstock rock outcrop is the most common soil type throughout the Town of Enosburgh while the Munson-Buxton-Belgrade soil group is more common in Enosburg Falls.

Earth Resources.

Earth resources, including sand and gravel deposits, are critical regional resources, especially because of their use in road maintenance and construction. Sand and gravel are non-renewable resources that are becoming increasingly scarce. The 1972 State Land Capacity Plan Map identified six sand and three gravel deposits in Enosburgh. The gravel deposits are located on Town Road 38, one mile from Route 108 near the intersection of Roads 5 and 20, and on Town Road 7 near the Montgomery town line. Five of the sand deposits are located near each other on Town Roads 1, 42, and 43, and at the intersection of Town Roads 42 and 50. The other sand deposit is on Town Road 7 about one mile from Town Road 10. The Vermont Geological Survey (1974) identified a large sand and gravel deposit of medium to good quality running along the Missisquoi through the Town and Village. It is common for sand and gravel deposits to be located in the floodplain, such as along the Missisquoi; however, environmental costs of extraction likely outweigh the benefits.

It is important to locate these reserves and to consider future use and access when making land use decisions. As Enosburgh develops, more of the earth resources will be needed to meet the needs of growing infrastructure. In considering the potential for any extraction operation, ground water contamination, the alteration of surface drainage patterns, soil erosion, stream sedimentation, and other environmental impacts should be avoided. At a minimum, any extraction operation must include appropriate site planning and development, erosion control, the phasing of operations, and proper site reclamation.

Photo: Small Tributary of Missisquoi (Photo Credit: Janice Geraw).

Surface Waters.

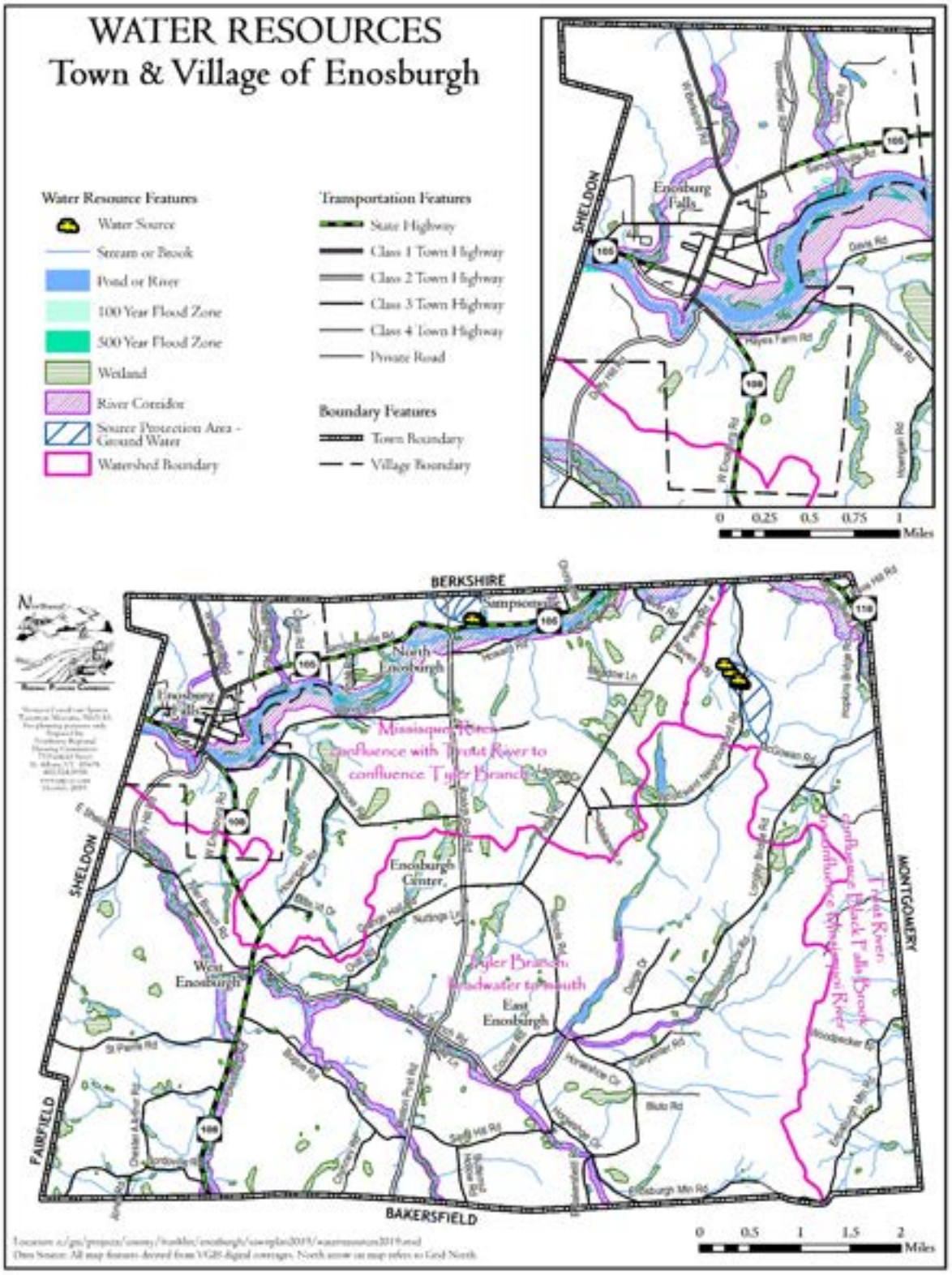
The Northwest Region of Vermont is home to many types of surface waters shown on Map 4.4. They offer sustenance, scenic beauty, recreational opportunities, and livelihood to the residents and visitors of Franklin County and Grand Isle County. Water is one of the basic necessities of life; and because of that, it must be appropriately respected, managed, enhanced, and preserved to ensure the future vitality of the Region and its inhabitants.

The Missisquoi, along with its associated brooks and streams is an important element of the local landscape. The Missisquoi River traverses through most of Franklin County (Map 4.4). In Enosburgh, it runs through the northwest section of town and south of the village. The Tyler Branch, which also runs through the Town, is one of its many tributaries. These rivers are a valuable natural and cultural resource. The Missisquoi River and the Tyler Branch provide many beneficial uses such as supplying people with drinking water and providing a place for recreation activities. Maintaining the quality of the rivers is of extreme importance. Not only does it affect the Town, but also it has the potential to directly affect the Missisquoi River Delta and consequently, Lake Champlain. Giddings Brook and Trout Brook are located north of the village and flow into the Missisquoi at points along Route 105.

Photo: A View of the Falls in the Village of Enosburgh Falls.

Mapping the Stream Channel. Using the state's protocols for geomorphic assessment, portions of the Tyler Branch, Trout River and the main stem of the Missisquoi have been analyzed to determine the causes of flooding, erosion and other water quality issues and to identify potential solutions. Information from these assessments has been used to develop Fluvial Erosion Hazard (FEH) maps for Tyler Branch, which can depict the area where flooding and erosion hazards are most likely to occur. These maps provide valuable information for town planning and hazard mitigation in Enosburgh and should be considered during town planning efforts.

Water Quality. Water quality, fish and wildlife habitat, scenic values, and recreational experiences can be adversely affected by land uses in the river corridor or along shorelines, especially when the natural vegetation is disturbed. Additional assessments and inventories of local rivers, streams, and ponds will further efforts to improve water quality in Enosburgh and downstream to Lake Champlain. Where there is evidence of poor water quality, the community should determine the source of the contamination and what steps should be taken to prevent harmful pollutants from reaching the water source. Any development proposed along the streambank or ponds should be required to have a naturally vegetated buffer strip; the Town of Enosburgh has specified buffer distances between development and waterways.



Map 4.4. Water Resources in Enosburgh

As of June 2012, there are two streams that flow into the Missisquoi River in Enosburgh that have been identified as being an "impaired" waterway; these streams are Trout Brook and Samsonville Brook. Impaired water refers to a stream where identified pollutants are above the allowable water quality standards, these waters are reviewed every two years as required by the Clean Water Act and a Total Maximum Daily Load (TMDL) plan is developed to identify how the water quality concerns will be addressed.

Recognizing Special Resources. The Missisquoi River Basin Association initiated a study to explore the Wild and Scenic designation eligibility in 2009 for 50 miles of the upper Missisquoi River in Franklin and Orleans Counties and 20 miles of the Trout River. This designation excludes the section of the Missisquoi River with the Enosburg Falls dam. The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. This designation encourages river management that crosses political boundaries and promotes public participation in developing goals for river protection. In addition, it enables access to federal funding for projects to preserve the recreational, scenic, historic, cultural, natural, and geologic resources of these rivers. It should be noted that designation neither prohibits development nor gives the federal government control over private property; recreation, agricultural practices, development and other uses are permissible in this designated area. The Town and Village voted to support this designation at the March 5, 2013 Town Meeting and the designation was approved by Congress on December 19, 2014.

Groundwater.

Water that is contained within the soil and rocks below the ground surface is considered ground water. Groundwater storage and travel is determined by topography and by the composition of the soils and rocks in which it is confined. Groundwater is the source of over 90% of the drinking water for rural areas in Vermont. It is replenished through rain and surface water that percolates down through the soil.

Vermont's groundwater policy declares that the State " shall protect its groundwater resources to maintain high quality drinking water…[and] shall manage its groundwater resources to minimize the risks of groundwater quality deterioration by limiting human activities that present unreasonable risks to the use classifications of groundwater in the vicinities of such activities (Vermont ANR Groundwater Protection Rule and Strategy). Risks to groundwater, as stated in the statute, are associated with human activity in the vicinity of the aquifer. There are State programs which are designed to protect groundwater. These include those aimed at hazardous materials management, agricultural plant industries, public water supply, well drilling, wastewater management, road de-icing management, and land use regulation.

Groundwater is a critical resource that must be managed effectively. Groundwater quality in Enosburgh and in the Northwestern Region of Vermont is considered generally good but there is always the potential threat of it being contaminated. The Vermont DEC has identified threats to groundwater resources to include such things as animal feedlots, fertilizer applications, irrigation practices, land application, landfills, material stockpiles, pesticide applications, pipelines and sewer lines, septic tanks, surface impoundments, and waste piles. Any activities that introduce

contaminants directly into the ground, such as underground storage tanks, leach fields, or agricultural activities, can affect ground water quality. Any of these land uses should be given serious consideration for their potential impact on ground water.

The Federal Well Head Protection Program was established to protect groundwater that supplies public drinking water systems. Vermont's Well Head Protection Program was adopted in 1990. It emphasized proper management of lands within Well Head Protections Area's to reduce or restrict potentially contaminating activities. The State also has the Groundwater Protection Rule and Strategy that was most recently revised in 2005. It provides restrictions, prohibitions, standards, and criteria for groundwater protection.

The Town of Enosburgh and Enosburg Falls, as well as Berkshire, all rely upon ground water for their local water supply. The wellhead for Enosburg Falls is located in Berkshire, and Berkshire's well head is in Enosburgh. Enosburgh has two wellhead protection sites (Map 4.4). In order to protect the source of water for the East Berkshire Water Coop, a 97-acre area around a spring off of the Woodward Neighborhood Road in the northeast corner of Enosburgh has been designated a wellhead protection site. The second site is located along Route 105 and is a groundwater recharge area for the Village. Land uses have potential to affect the quantity and quality of these water supplies across town boundaries and should be monitored.

Wetlands.

Wetland areas are defined by the State of Vermont as "those areas that are inundated by surface or ground water with a frequency sufficient to support vegetation or aquatic life that depends on saturated or seasonally saturated soil conditions for growth and reproduction." This definition includes but is not limited to marshes, swamps, sloughs, potholes, fens, rivers, lake overflows, mud flats, bogs, and ponds. Generally, wetlands share three basic characteristics: the presence of water at or near the ground surface, the presence of water-dependent plants occurring on site, and common types of soil. Vermont's wetlands have been well documented as serving critical ecological and socio-economic functions.

Enosburgh's most important wetland is Adams Pond (also known as Woodward Swamp or Beaver Meadow Swamp) and its associated pond systems along Beaver Meadow Brook. The system includes 3 ponds along a 3-mile length from East Enosburgh to the north end of the pond located north of Woodward Neighborhood Road. It is classified as a wooded swamp with floating vegetation and bear activity. There are numerous other small marshy areas with open water, intermittent plant growth, forest cover, or shrubs.

Wetlands have been mapped by the U.S. Department of the Interior, producing a set of National Wetland Inventory maps for each municipality. This information is useful for assessing the general character of a particular area, but is not accurate enough to determine the nature of a particular property without a site visit. This inventory identifies numerous marshlands located throughout the community.

Wetlands serve many different functions that contribute to the quality of the surface and ground water as well as socio-economic factors including the following:

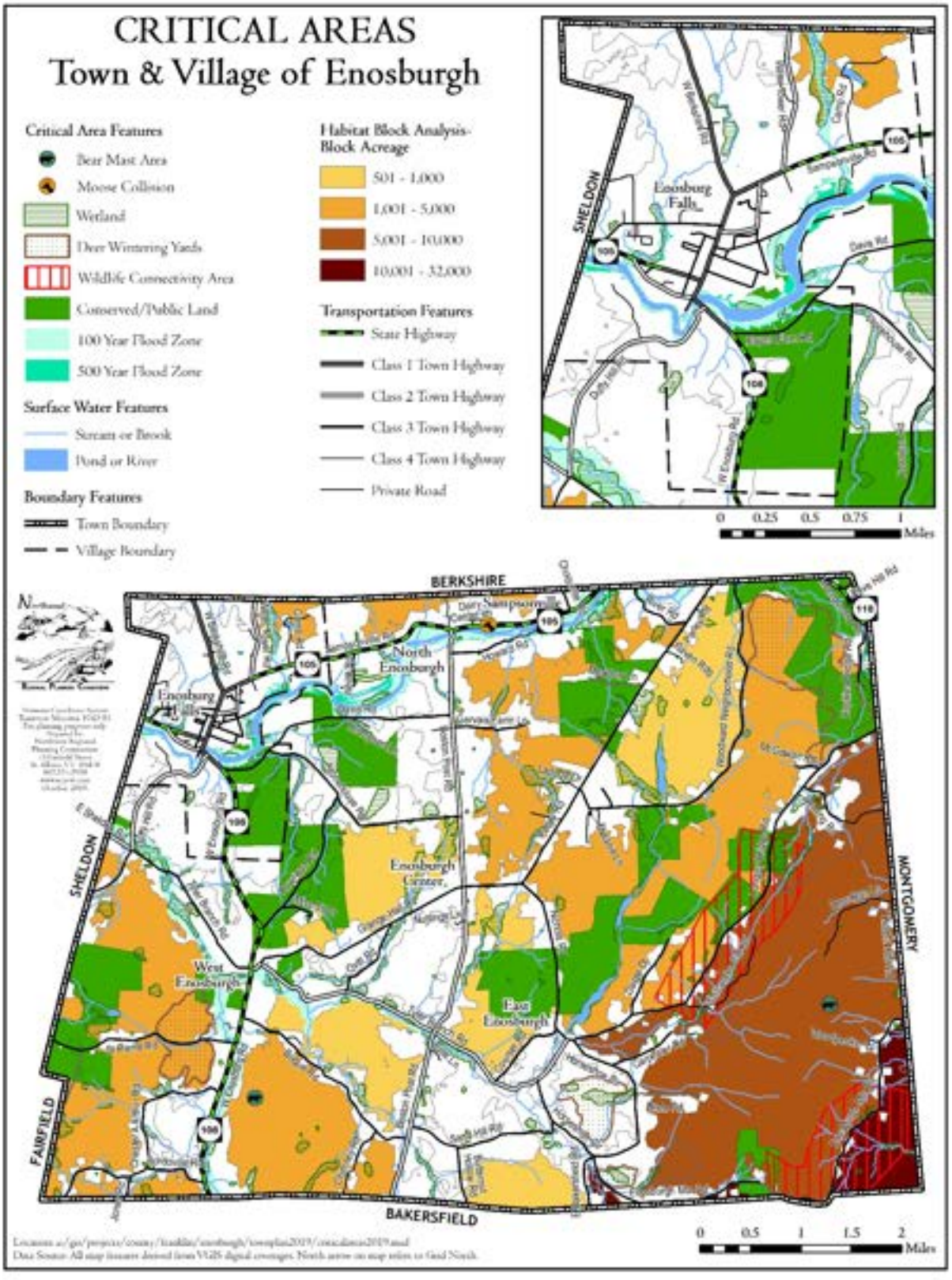
- Flood Control and Stormwater Runoff: wetlands associated with streams slow flood waters, provide flood storage, and reduce peak flood levels
- Shoreline Anchoring: wetlands provide erosion control
- Water Quality: wetlands act as a filter to process heavy metals, pesticides, and other toxic substances and they remove nutrients from run-off water (i.e. agricultural run-off)
- Habitat: wetlands provide habitat for a wide variety of plants and animals including a high number of threatened or endangered species
- Socio-economic Value: wetlands are utilized by humans for their recreational, scenic, historic, educational, and cultural values

Vermont's wetland regulations were last amended effective August 15, 2018 and the current system established a three-tier wetland classification system. Designated Class I wetlands are considered the most environmentally significant and therefore receive the highest level of protection under state law, requiring a 100-foot vegetated buffer between any adjacent land development. There are currently no Class I wetlands located in Enosburgh. Rather, most local wetlands are designated as Class II—protected from development by a 50-foot buffer (see Map 4.4 for the locations of wetlands on the Vermont Significant Wetland Inventory). In addition, the Vermont Wetland Rules require that most development that impacts a Class II wetland obtain a conditional use permit from the Agency of Natural Resources, which may only be granted if it is proven that the proposed development will not have an undue adverse impact on the functions and values of any significant wetlands or their adjacent buffers. Lastly, Class III wetlands are those wetlands with no delineated buffer.

Wildlife Habitat.

Supporting a healthy wildlife population through the protection of habitat is an important component to maintaining a healthy ecosystem, and provides significant recreational and economic benefits to the community. An abundant and healthy wildlife population provides enjoyment for both hunters and non-hunters alike. Development in and around wildlife habitat can cause a significant decrease in the diversity and quantity of wildlife. This is especially important with wide-ranging species such as deer, bear, bobcat, fisher otter and moose populations as well as a number of species of concern that have been identified in the Vermont State Wildlife Action Plan. Species of concern include some amphibians and reptiles found in our upland forests and along the rivers and streams in Enosburgh. Wildlife species such as these and other non-game bird species are highly dependent on the river and upland areas for their habitat needs. Refer to the *2004 Open Space and Natural Resources Assessment* by Arrowwood Environmental for Wildlife Units and recommendations.

Deer wintering areas provide critical habitat for white tail deer and other forms of vertebrates. These areas of hemlock, spruce, fir, cedar, and pine species provide shelter from deep snows, and they also permit easier winter travel for deer and other species. The combination of elevation, vegetation, and solar aspect, significantly increase the survival rates of deer populations and also impact the landscape ecology and recreation. The U.S. Fish and Wildlife Service has targeted these areas for protection. Deer wintering areas have been identified in the heavily forested areas of Eastern Franklin County - this includes the eastern section of Enosburgh (see Map 4.5).



Map 4.5. Critical Habitat Areas in Enosburgh

Large, contiguous wintering areas exist along the Trout and Tyler Branch of the Missisquoi River. There are 3 designated deer yards in Enosburgh; a 124-acre yard on the St. Pierre Road, a fractured series of small yards along the Cold Hollow Brook, and a large yard (over 300 acres) in the northeast corner between Longley Bridge Road and the Woodward Neighborhood Road. Deer yards, aside from providing winter range, are essential for year-round species migration. Careful management of these areas is of extreme importance in order for the species to thrive.

Black bear prefer mountainous and forested landscapes just like those found on the slopes of the Green Mountains. The location of most bear habitat is in Eastern Franklin County in the towns of Enosburgh, Bakersfield, Montgomery, and Richford. Black bear have a significantly large home range and because of this, their survival rate decreases when larger areas are divided up into smaller units and into isolated forestlands. When land is developed in scattered locations throughout the Town, the black bear habitat areas are decreased. Prime black bear habitat is limited to 60% of the state, primarily along the Green Mountain spine and in the Northeast Kingdom. Prime black bear habitat in Enosburgh is found in the eastern section of the town, where the Green Mountains begin and large unbroken tracts of forest remain; Map 4.5 shows identified bear masting areas.

Additionally, Enosburgh shares a 3281-acre wildlife habitat with the Towns of Bakersfield and Montgomery. It is located in the Cold Hollow Mountain and Trout Brook areas. There are also several wildlife connectivity areas that connect distinct timber tracts as shown on Map 4.5. These areas are considered "connectivity areas" as they are the remaining links between large forest blocks necessary for wildlife travel between habitat areas. One critical connectivity area is between two core habitat blocks in the northeast corner of Enosburgh that connects a large block in Enosburgh to a large block in the Town of Richford; much of this area is currently conserved land. These connectivity areas are very important to maintain in order to prevent forest fragmentation of our forests and wildlife habitat. Another noteworthy wildlife habitat area is the Jarvis Brook Heron Rookery. This is a partially wooded, deep marsh area which supports a great blue heron nesting colony on a half-mile stretch of an unnamed tributary of the Jarvis Brook.

Fisheries.
The Missisquoi and its tributaries have natural populations of largemouth and small-mouth bass, brown trout, and rainbow trout. The fishery has aesthetic, recreational, and economic value.

Forest Resources.
According to 2002 Landsat data, approximately 62% of the land cover in Enosburgh is forest. Statewide, approximately 78% of the land cover is forest according to the Vermont Department of Forestry. Enosburgh forests provide quality forest products while supporting tourism, recreation, wildlife habitat, a clean and reliable water supply, and the scenic and rural nature of our town. Forest areas also provide additional benefits including a source of forestry-related jobs, storm water mitigation, air purification and temperature moderation.

The Enosburgh town forest is located on the east and west side of the Longley Bridge Road and contains 120 acres (Map 7.1). The rest of the forestland in Enosburgh is privately owned and managed. As of December 2012, approximately 15,689 acres enrolled in the State's Current Use Program, of which approximately 5,820 acres were agriculture and 9,878 acres were enrolled

productive forestland. This is an increase of just under 3,000 acres since 2003 and the majority of the change in acreage has been in forestland. Enrollment requires that the owner follow a state approved forest management plan. There is one tree warden, and a forest resource committee that serves the town of Enosburgh.

Rare or Endangered Species.
According to currently available information, the Enosburgh does not contain or encompass either rare or endangered species of plants or animals.

Air Quality.
Clean air is an essential component of Enosburgh's environment and should be protected from local site-specific (e.g. industrial, backyard burning, dust from construction and excavation sites) or cumulative (e.g. automobile emissions) pollutants that could degrade air quality. Protecting the Town from the effects of long-distance airborne pollutants such as acid rain; however, is far more complex and will require cooperative action at all levels of government.

Goals, Policies and Recommendations.

GOALS

- Protect the quality of air, water, and land resources through development regulations.
- Protect key natural features, groundwater recharge areas, wetlands, floodplains, streambanks, and local waterways from adverse impacts of development.
- Provide access to the natural assets of the area for residents and visitors.

POLICIES

- Protect ground water to ensure quality and quantity of public and private water supplies by regulating uses that could introduce contaminants into the ground.
- Protect quality of surface water to maintain scenic beauty and recreational benefits.
- Protect the water quality of the Missisquoi River and its tributary streams by promoting riparian zone management to aid in the prevention of bank erosion.
- Support and encourage landowner efforts to maintain open land with productive soils for use of local farming operations.
- Guide development away from productive agricultural or forest soils.
- Allow development based upon the capacity of the land considering factors such as soils, topography, and the presence of water and wetlands.
- Limit development in areas where soils have limited capacity to support structures or filter wastes and in areas where slope is greater than 20%.
- Limit use in floodplains to agriculture, open space, and recreation, unless otherwise approved through regulatory measures.
- Protect public access to the Missisquoi River.
- Ensure that development does not result in undue air pollution.
- Limit the loss of location wildlife habitat ad infringement upon wetlands.
- Limit or mitigate the loss of wildlife habitat by protecting wildlife connectivity areas.
- Minimize the fragmentation of forests by other land uses as a way to maintain the working forested landscape and core wildlife habitat.

Chapter 5: Housing

Safe, affordable, adequate housing is one of our most basic needs and is an important concern to residents of Enosburgh. Availability of a variety of housing types (in equally various price ranges) fosters a diverse community, which is more attractive for residents and helps to facilitate economic development. A range of housing opportunities also strengthens the ability of local businesses to attract and retain new workers so they can compete and expand in the changing economy.

In recent years, access to affordable housing has become a greater issue as housing prices have increased at a greater rate than income. As a whole, Franklin County has a great difference in the supply of, and need for, affordable housing. Towns that are located in the southern tier of the County have a relatively small percentage of families below the County median income. Therefore, there is little housing that would be affordable to households earning the County median income. Town's that are more rural in nature, often provide a large portion of the Region's affordable housing.

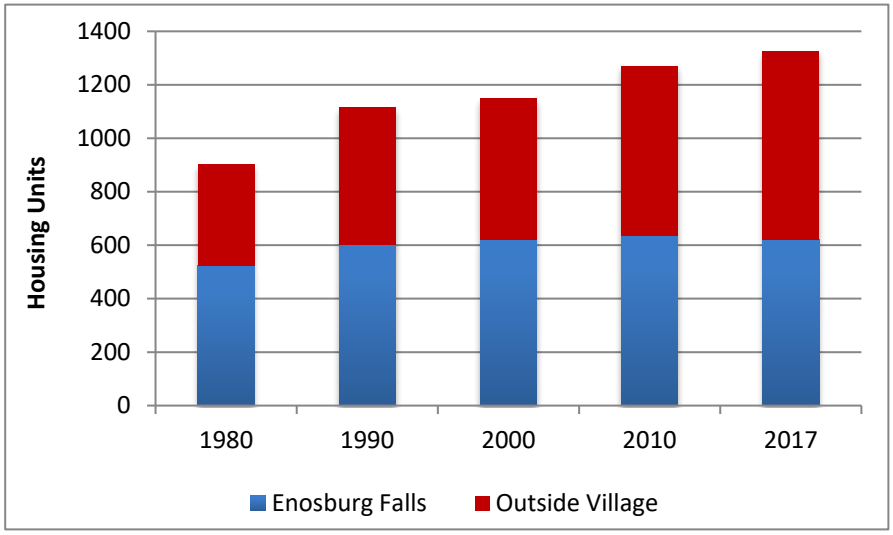
Current Housing Trends.

Enosburgh experienced a boom in housing growth during the 1980s; the number of housing units increased by 23.6%. This rate of housing development slowed in the 1990s to 3% and from 2000 to 2010 rose up to 10.6% before slowing to 4.2% from 2010 to 2017. Much of the increase in housing during the 1980s resulted from the construction of three income-restricted housing developments within the village that added 90 affordable rental units to the housing stock (see section *Affordable Housing Development* for more detail).

> A housing unit is defined as a house, an apartment, a mobile home or trailer, a group of rooms or a single room occupied as separate living quarters, or if vacant, intended for occupancy as separate living quarters.

Although fifty percent of the total housing units are located in the village, the majority of housing development in recent decades has been outside the village, see Figure 5.1. The 2017 American Community Survey reported a total of 1,324 housing units in Enosburgh, of these units 620 were in Enosburg Falls.

Figure 5.1. Total Housing Units in Enosburgh



Source: U.S. Decennial Census; 2013-2017 American Community Survey

Table 5.1 shows the change in population, the number of housing units, and the number of households for Enosburgh, Franklin County, and for the State of Vermont from 1980 to 2017. rate of population growth from 2010-2017 in Enosburgh was minimal while the rate of housing development decreased. This is in contrast to the scenario from the 2000-2010 trend where Enosburgh's population grew minimally but the number of housing units by 10%, thus creating a softer housing market.

Table 5.1. Trends in Population (Popn), Households (HH) and Number of Housing Units (HU)

	1980-1990 (% Change)			1990-2000 (% Change)			2000-2010 (% Change)			2010-2017 (% Change)		
	Popn	**HH**	**HU**	**Popn**	**HH**	**HU**	**Popn**	**HH**	**HU**	**Popn**	**HH**	**HU**
Enosburgh	22.46	25.03	23.61	9.98	8.07	3.05	-0.25	4.73	10.62	-.83	21.39	4.17
Franklin County	14.92	23.65	19.29	13.6	17.02	11.25	5.13	10.43	12.49	2.24	16.02	3.33
Vermont	10.03	18.12	21.51	8.19	14.23	16.80	2.78	6.57	9.56	-.18	11.51	2.66

Source: 1980, 1990, 2000, 2010 U.S. Census, 2013-2017 American Community Survey

Housing Stock.

The vast majority of housing in Enosburgh consists of older, single family homes; 41% of all housing units were built prior to 1960. As of the 2017 American Community Survey, of the town's 1,324 housing units, 1.128 (85%) were year-round units. These included 395 rental units, 64% of which are located in the village. Table 5.2 shows the occupancy status of housing units in Enosburgh for 2017. Eighty-five percent of Enosburgh's housing is occupied and the majority of units are owner occupied (65%). With a 4.5% vacancy rate in 2017 for rental and sale units, the market is considered healthy for buyers and sellers and keeping up with demand.

Table 5.2. Occupancy Status of Housing Units for Enosburgh

	# of Units	% of Total
TOTAL UNITS	1,324	100%
Total Occupied	1,128	85%
Owner Occupied	733	65%
Renter Occupied	395	35%
Total Vacant	196	15%
Seasonal, recreational, occasional use	85	6%
Rental	29	2%
For sale only	31	2%

Source: 2013-2017 American Community Survey

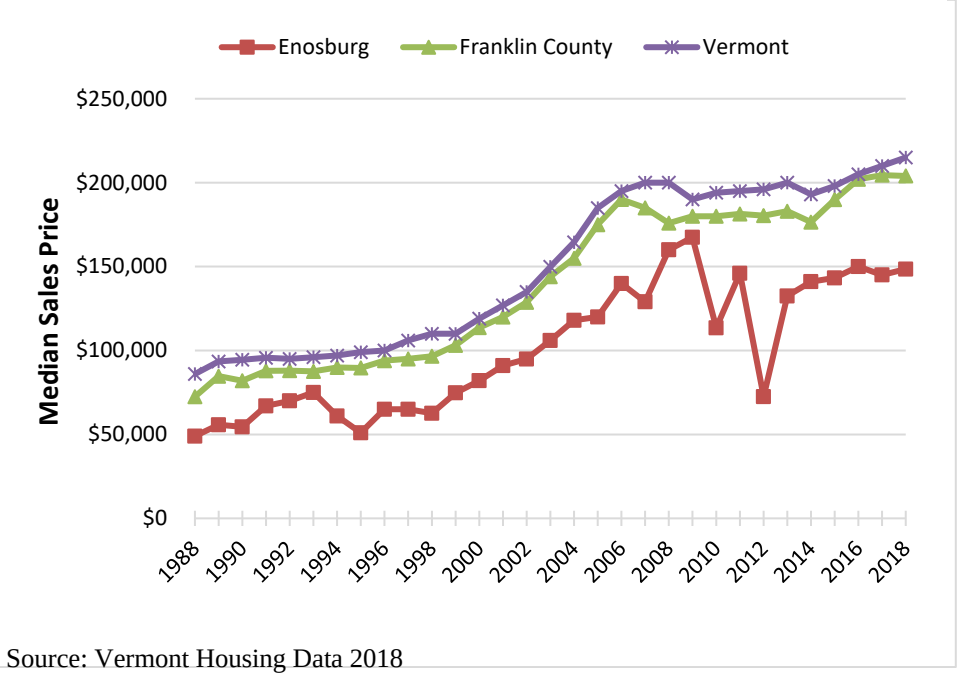
Affordable Housing Needs.

The demand for affordable housing is something that needs to be addressed in all communities. Housing is considered affordable when a household pays no more than thirty percent of their income on housing. Lower income households have to get by on tighter budgets and because housing is a basic need that people cannot do without; high housing costs place a greater strain on lower income households than on households with more disposable income. Therefore, affordable housing initiatives generally emphasize the importance of providing affordable housing to households that are at or below the median income of the area.

The price of housing in Enosburgh has generally been lower than the regional and statewide trends (Figure 5.2). According to the Vermont Housing Data in 2018, the median sale price of a

primary residence in Enosburgh ($148,500) was $55,500-$66,500 lower than that of Franklin County ($204,000) and the state as a whole ($215,000). However when compared with other local housing markets, including St. Albans Town ($265,000), Swanton ($191,000), Fairfield (175,000), and Richford ($104,500), Enosburgh appears to be in the middle of the range of homeownership affordability.

Figure 5.2. Median Sale Price of Primary Residence



Source: Vermont Housing Data 2018

To define affordable housing, the state has determined that 80% of the median household income (or median metropolitan statistical area (MSA) income, if it applies) should be able to afford to pay no more than 30% of their income on housing. This definition is used as an indicator for the availability of affordable housing in a community. Homeownership housing costs include not only the mortgage, but taxes and insurance. In the case of rental units, the cost is defined as rent plus utilities.

All municipalities in Franklin County are deemed part of the Burlington-South Burlington Metropolitan Statistical Area. The figures for median income, however, do not paint an accurate picture for many of the municipalities within Franklin County. The 2017 median household income for the Burlington-South Burlington MSA was $65,476, while it was $62,214 in Franklin County (2013-2017 US Census). For this reason, the Northwest Regional Planning Commission uses the county median household income to compute affordability statistics.

Table 5.3. Household Income Distribution	
Income	**% of Households**
Less than $24,999	23%
$25,000 to $34,999	10%
$35,000 to $49,999	13%
$50,000 to $99,999	38%
$100,000+	17%
Source: 2013-2017 U.S. American Community Survey	

The U.S. Census estimated the 2017 median household income in the Enosburgh to be $54,900 versus $62,214 in Franklin County as a whole. While the data do not allow for calculating the number of households that are considered "low-income" or earning less than 80% of the median ($43,920); approximately 23% of the population are considered "very low income" or households earning less than 50% of the median. It is estimated that 13.1% of individuals were under the poverty level.

The following two tables (Table 5.4. and 5.5) compare maximum affordable mortgages and rents in Enosburgh with the median sale price for a primary residence and median rent based on spending no more than 30% of household income on housing. The affordability gap is the difference between the available income and the maximum affordable mortgage or rent. The median income represents moderate-income households or families and 80 percent represents low-income households or families. A family consists of two or more related members while a household refers to all people who occupy a housing unit regardless of relationship. All families or households earning the median income are able to afford homeownership however for the lower income populations the ability to bridge the gap to affordability can be large. At both the community and county level the median family income is greater than median household income; these groups are better able to afford homeownership. Rental housing in Enosburg Falls appears to be more affordable for median and low incomes, while very low incomes have a gap of 17 dollars.

Table 5.4. Affordability Gap for Home Ownership in Enosburgh

Income		30% of Income Per Month	Taxes & Insurance	Income Available for Housing Per Month	Maximum Affordable Mortgage	Median Sale Price Primary Residence	Owner Affordability Gap
County Median Family Income	$76,898	$1,922	$414	$1,508	$252,855	$204,500	$48,355
Low Family (80%)	$61,518	$1,538	$414	$1,124	$188,404	$204,500	$(16,096)
Median Family Income	$65,625	$1,641	$414	$1,227	$205,614	$145,000	$60,614
Low Family (80%)	$52,500	$1,313	$414	$899	$150,612	$145,000	$5,612
County Median HH Income	$62,214	$1,555	$414	$1,141	$191,319	$204,500	$(13,181)
Low HH (80%)	$49,771	$1,244	$414	$830	$139,176	$204,500	$(65,324)
Median HH Income	$54,900	$1,373	$414	$959	$160,669	$145,000	$15,669
Low HH (80%)	$43,920	$1,098	$414	$684	$114,656	$145,000	$(30,344)

Source: Median Household Income, Median Family Income (American Community Survey 2013-2017); 2017 Median Home Sale Price (Vermont Housing Data); taxes and insurance estimated; all other figures computed by NRPC.

Table 5.5. Affordability Gap for Renting in Enosburgh			
Income	**Income Available for Rent/ Month**	**Median Gross Rent**	**Rental Affordability Gap**
Median Family	$1,641	$703	$938
Low (50 - 80%) Family	$820 to $1,313	$703	$117 to $610
Very Low (≥50%) Family	< $820	$703	$117
Median HH	$1,373	$703	$670
Low (50 - 80%) HH	$686 to $1,098	$703	($17) to $395
Very Low (≥50%) HH	< $686	$703	($17)
Data Source: 2013-2017 U.S. Census			

Affordable Housing Developments.

Vermont Statute defines "affordable housing development" as a housing development of which at least 20% of units, or a minimum of 5 units, whichever is greater, are affordable housing units. It also states that affordable units shall be subject to covenants or restrictions that preserve their affordability for a minimum of 15 years or longer as provide in municipal bylaws.

Photo: Falls Housing Inc. **(Photo Credit: Janice Geraw)**

There are currently two developments of subsidized affordable housing in Enosburg Falls. Pleasant Street Apartments provides 24 apartments (8 one bedroom and 16 two bedroom), all of which are available to families making less than 60 percent of the median income. The second development of affordable housing, Falls Housing Inc., was open for occupancy in 2007 after rehabilitation of the Depatie Block on Main Street in the center of the Village, which was destroyed by fire in 2005. The redevelopment includes six units in the upper levels of the Merchants Bank Buildings, with a total of 28 units. Three units are market rate, while the remaining 25 are available to households earning 60% of the median income. Given the disparity between median income and the median sale price, the need for more affordable housing is apparent.

Adequate provision of housing options for the elderly is important as the baby boomers age, increasing the proportion of the elderly in the community. There is one level 3 assisted living facility (Brownway) and one apartment complex (Riverbend Apartments) available to the elderly

and disabled through Section 8 funding. Brownway is a 36-unit care facility with some subsidized rooms. Riverbend Apartments offers 30 units of housing for elderly and disabled with rents pegged to income.

Affordable Housing Opportunities.

When possible, affordable and senior housing should be located conveniently near community services and the Village area to make it easier for residents to access needed services without a vehicle. The accessibility of public infrastructure contributes to the availability of low-cost housing. In particular, sewer and water connections allow for higher densities and lower land costs by minimizing the amount of land that is necessary to accommodate new development. Affordable housing developers often depend on these public facilities to reduce building costs and pass on savings to the buyer or renter. Utilizing small, in-town lots for infill development and rehabilitating existing structures can also help create housing, which is naturally more affordable.

Mobile homes are also an important source of affordable housing. Vermont land use law does not allow municipalities to discriminate against or segregate mobile homes. Mobile homes in a town can provide an opportunity for those who cannot afford conventional housing.

Goals, Policies and Recommendations.

GOALS:

- Ensure adequate housing options for people of all income levels, ages, household types, and preferences.
- Promote safe, healthy and affordable housing for all segments of the population.

POLICIES:

- To conserve and protect the vitality and quality of existing residential neighborhoods or areas.
- To encourage compatible infill residential development in existing neighborhoods.
- To support the historic rehabilitation of the existing housing stock.
- To maintain existing rental units and support the creation of new ones with consideration for the character of the surrounding neighborhood.
- To encourage the development of senior housing opportunities located near necessary amenities.
- To promote and support zoning that allows and encourages increased densities for the purpose of providing affordable housing, such as planned unit developments, while preserving the character of older neighborhoods and the village areas.
- To promote low-density residential housing in areas without municipal services and higher densities in parts of town with existing services or close to existing service boundaries
- To promote housing developments that provides opportunities for a mixture of incomes and includes or provides access to commercial, civic, and recreational uses.
- To support housing connected to schools, safe areas for physical activity and healthy food access via safe walking and biking routes.
- Encourage the development of housing that is energy efficient to reduce heating and electricity costs.

Chapter 6: Education

History.

Beginning in 1806, Enosburgh Town leaders arranged for the orderly education of local youth by dividing the Town into districts, which were made up of farms or lots. Enosburg Falls began its educational history as District Number 7, composed of 18 lots. The first school in the Village was built of logs in the 1820's, according to Janice Geraw's history of Enosburgh, and was replaced after being "set fire to by one of the pupils." The present Enosburg Falls Middle & High School was originally built in 1907, over 100 years ago, as a Kindergarten through grade 12 facility. In 1954, Town and Village school administrators closed the scattered school districts throughout Town and approved plans for a new elementary school to be built in the Village, which was built in 1956 and was last expanded in 1988. Voters have approved three additions to the Middle and High School, in 1945, 1981, and the most recent in 2001 (completed in 2004).

Right: Historic photo of the Enosburg Falls High School.

Bottom: Enosburg Falls Middle and High School (2001 renovations).

Educational Facilities and Enrollment.

Enosburgh has three educational facilities which are all located in the Village of Enosburg Falls. Together the schools offer regular and special educational programs which range from preschool to adult education. All three buildings provide access to technology to assist with student learning such as Internet and cable TV. The high school has a satellite dish which enables it to downlink programming. The school system's aim is to provide a quality education for the community's children and its adults.

As of July 1, 2019, the Enosburg Falls School District and the Richford School District merged due to Act 46. The district became the Enosburgh Richford Unified Union District. The ERUUSD is run by an elected six-member board.

The Enosburg Elementary School includes kindergarten through grade five and includes two pre-kindergarten programs for 3 and 4-yearolds; these programs have been in existence since the 2010-2011 school year. In 2005, grade 6 was moved to the Middle School to relieve the Elementary School from space limitations. Since that time, enrollment numbers have fluctuated with a peak in 2008 at 231 students at the Elementary School; overall the enrollment has been relatively stable at around 200 students. With the inclusion of the pre-kindergarten programs the current enrollment for 2018-2019 is 278. Even though grade 6 was moved to the Middle School in 2005, space limitations remain an issue for the Elementary School. The current capacity of the school is around 350 students. Several things contribute to the space crunch including, an increase in the number of special needs students and the facilities and staff to serve them and increasing enrollment. Currently, the school uses the gymnasium as the cafeteria, which adds an additional space constraint. The Village has had discussions on how to address the space limitations in the Elementary School, but there are no official plans yet.

Table 6.1. Enosburg Falls School Enrollment Information

Grade	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	% Change 2009-2018
K	43	27	31	31	39	29	37	32	41	40	-7.0%
1	39	42	29	34	29	39	26	35	34	39	0.0%
2	40	41	40	28	31	32	39	26	34	36	-10.0%
3	25	39	41	38	28	24	35	42	23	34	36.0%
4	38	30	36	45	44	26	29	33	48	23	-39.5%
5	27	39	27	36	42	43	25	25	37	41	51.9%
6	38	26	42	29	42	43	42	26	28	32	-15.8%
7	38	36	25	39	26	48	42	44	29	26	-31.6%
8	28	42	34	26	36	26	48	41	44	30	7.1%
9	100	93	80	80	72	93	78	88	84	101	1.0%
10	82	101	85	83	79	76	96	73	94	82	0.0%
11	78	81	87	86	78	82	76	99	71	90	15.4%
12	88	77	79	72	84	76	76	67	91	65	-26.1%
Total	**664**	**674**	**636**	**627**	**630**	**637**	**649**	**631**	**658**	**639**	**-3.8%**

Source: Franklin Northeast Supervisory Union; Enrollment as of October of Year Provided

The Enosburg Falls Middle and High School is a NEASC accredited school, which houses grades six through twelve. It is one of only five high schools in Franklin County. Enrollment at the Middle and High School from 2003 to 2008 fluctuated around 500 however since 2009 attendance has been around 420 to 450 students. The fluctuation can be due to the presence of

tuition students who may choose to attend high school at Enosburg, Richford, Saint Albans, Swanton or Lamoille Union. Enosburg High School also receives tuition students from the towns of Bakersfield, Berkshire, Fairfield, Sheldon, and Montgomery. As of 2013, the State is allowing universal high school choice allowing students to go to any high school in Vermont provided there is capacity to accommodate them. Many towns served by the school system are growing more rapidly than the Enosburgh area therefore forecasting the number of tuition students, a most important factor in planning and budgeting, has become difficult.

The 2004 renovation to the Middle and High School was planned for a maximum capacity of up to 650 students. Capacity is sufficient for the current number of students (see Table 6.1) and for many years to come at the current rate of growth.

The Cold Hollow Career Center (CHCC), built in 1981, offers college and career opportunities to students from Enosburgh and Richford High Schools as well as adult students served by the area School District. The programs include automotive, forestry and natural resources, building trades, business leadership, cosmetology, digital media production and medical careers. Evening adult programs are offered during both spring and fall semesters. The Center has a capacity of approximately 105 students based on the capacity of service, 15 students per program and offers seven core programs. Through CHCC, many students interact with the community within their chosen field.

All Enosburg Falls educational facilities are located in or near the center of the Village. This provides convenience for transportation and for community use of the buildings and adjacent athletic fields. The cost of maintaining a school is shared between the Town and Village, the State, and the Federal Government.

Other Educational Facilities.

The majority of colleges are located either in or around Burlington or in St. Albans. The Community College of Vermont (CCV) offers courses and degree programs in both Burlington and St. Albans. The CCV is part of the Vermont State College System and has links to other higher education facilities around the State. The University of Vermont, St. Michael's College, Burlington College, and Champlain College are all located in the Burlington area while Johnson State College is located in Johnson.

Goals, Policies and Recommendations.

GOALS:

- Coordinate enhancement and expansion, as needed, of educational services and facilities to meet the current and future needs and requirements of the community and areas served.
- To provide high quality, broad-based educational services for the people of the community.

POLICIES:

- Work to maintain and expand cooperation and coordination between the municipal and school entities (Enosburgh School District, Town of Enosburgh, Village of Enosburg Falls, Franklin Northeast Supervisory Union, and School Boards) to ensure that the District's long-term plans are consistent with those of the Town and Village.

- Assure that the quality of school facilities and capacity is sufficient to meet planned community growth.
- Assure access to educational and vocational opportunities are broadened and maintained, though such programs as Adult Education, GED and free library services.
- Encourage community involvement in the school system.

Chapter 7: Public Utilities, Facilities and Services

Water Supply and Systems.
The majority of households outside of the village are served by a private water source such as a drilled or dug well or a private company. A little less than half of all households in the Northwest Region obtain their water from public water systems. The State of Vermont defines public systems as systems that have at least ten service connections or serve at least twenty-five individuals. Groundwater is a vulnerable resource and the source of most drinking water.

Enosburg Falls is served by a municipal water system supplied by two drilled wells located in the Town of Berkshire; Well #1 has been in service since 1960 and Well #2 since 1979. Demand for municipal water was 15% of combined well capacity in 2007 and therefore no additional capacity needs are anticipated in the near future. A new reservoir with a capacity of 750,000 gallons was built in 1990. A 16-inch line carries water from the reservoir to the intersection of Water Tower Road and Route 105. A 10-inch line extends from there to the corner of Pleasant and Elm Streets. From this point, water is carried down Elm and Main Street through an 8-inch and 6-inch line respectively.

There are no major water system expenditures expected in the next 5 years. There have been several line improvements over the last five to ten years; the Village has incorporated upgrades with street improvements. In 2012, a new 12inch water main was installed on Pleasant Street from Elm Street to the 10-inch line on Depot Street; this line has made a noticeable improvement to water for most of the fire hydrants in the Village.

Village Electric Department.
The Village of Enosburg Falls is serviced by its own Electric Light Department (EFELD), which was built in 1896 at a cost of $16,827.34. The local utility includes two hydro plants with a combined generating capacity of 900 kilowatts (kW). On average, the hydro plants generate 15% of total electric demand. Additional sources of electricity include Hydro Quebec and purchases from the New England Power Pool. The system has expanded over the years and continues to serve the community and the surrounding area.

Figure 7.1. EFELD Service Area. Source: VT Dept. of Public Service.

A 5-member board consisting of Village Trustees and the Village Manager govern the EFELD. The department serves the entire Village of Enosburg Falls, most of the Town of Enosburgh, parts of Bakersfield, Sheldon, Fairfield, Berkshire, and Franklin. Currently the department has 1,765 customers. Connections to the EFELD increased by close to 31 percent from 1994 to 2018 (Table 7.1). The majority of total connections are largely residential uses located inside the Village; however, in the last two to three years there has been an increase in the number of hookups for sugar bush operations.

Table 7.1. Electric Department Hookups by Customer Class							
Category	**1994**	**2001**	**2006**	**2012**	**2018**	**Increase**	**% Increase**
Residential							
Village	559	568	550	577	964	+ 405	+ 72.45%
Outside	681	773	847	890	580	- 101	- 14.83%
Small Commercial & Industrial	106	171	175	198	221	+ 115	+ 108.49%
Total Electric	**1,346**	**1,512**	**1,572**	**1,665**	**1765**	**+ 419**	**+ 31.13%**
Source: Enosburg Falls Electric Light Department. 2012 Annual Report; Enosburgh Falls Town Clerk 2019.							

The hydro plants underwent substantial upgrade in 1992, which included new automated controls, crest and head gates, intake structure and fish passage. Since then, the EFELD received federal grant money and bond approval to upgrade the Village substation and distribution lines, which was completed in 2003 and 2004. As a recommendation for system efficiency from the Comprehensive Electrical Distribution Report, the department has replaced most of the 2.4 kV Delta system in the Village with higher voltage of 12.47 kV. This upgrade creates better system reliability and lower line losses and makes critical improvements with regards to employee safety. In 2017 and 2018, the Village's Electric Department completed a $2,000,000.00 renovation project to Village Plant #1 hydro generator. The work completed has created greater efficiencies, capacity for generation, and ensured that Plant #1 and the Kendall Plant will continue to operate into the coming decades.

Electric utilities file annual reports with the Department of Public Service and Public Service Board that outline the number and type of outages that occurred during the past year. As part of that report, EFELD is required to indicate the worst performing area and what corrective measures are planned to rectify the problems.

Vermont law requires all electric distribution utilities to prepare and implement integrated resource plans ("IRP"). According to 30 V.S.A. § 218c, an integrated resource plan is a comprehensive, long-term plan for meeting the public's need for energy services, after safety concerns are addressed, at the lowest present value life-cycle cost, including environmental and economic costs, through a strategy combining investments and expenditures on energy supply, transmission and distribution capacity, transmission and distribution efficiency, and comprehensive energy efficiency programs. An Integrated Resource Plan was last filed with the Public Service

Below: The Falls (Photo Credit: Janice Geraw).

Board in March 2017.

The Energy Chapter discusses electricity service, costs, and efficiency and conservation programs related to electricity.

Wastewater Disposal and Sewer System.
The Village of Enosburg Falls operates an extended aeration wastewater treatment facility constructed in 1977. All but a few Village residences are connected to this system, while there are no connections outside the Village. Those that are not connected have onsite sewage disposal. There are no current plans to connect these residents due to physical and financial limitations. The system is permitted for 450,000 gallons per day and in 2018 was at 56.9% of the permitted levels, allowing sufficient reserve to meet planned growth demand; in 2018, there were 194,162 gallons per day in reserve. The Village contracts the disposal of its sludge to an approved facility, which had a cost of $74,994.00 in 2018. The facility was refurbished in 2012 to handle increased flows during intense rainfall and to provide increased disinfection contact time.

Because the Missisquoi River and its tributaries traverse through Enosburgh, it is important that the community take steps to ensure the protection of its stream bank area. Development in these areas presents a difficult and potentially serious set of wastewater disposal problems. Existing homes or camps may have inadequate or failed septic systems and these have the potential to discharge directly into the river. This can cause harm not only to the river but also indirectly to Lake Champlain.

Stormwater Systems.
The term “stormwater” applies to rain and snowmelt that runs off impervious surfaces like roofs, driveways and paved streets, rather than infiltrating into the ground and natural water cycle. As it flows into streams and lakes, stormwater runoff often picks up pollutants such as oils, fertilizers and sediment. Excess stormwater also contributes to erosion and increases stream volumes during peak storm events. Larger municipalities may attempt to mitigate the negative impact of excess stormwater runoff through the creation of storm sewers, and even stormwater treatment plants. Enosburgh’s stormwater drainage system consists of series of drainage inlets within the village, as well as a network of culverts and ditches along the town highway network.

The Planning Commission encourages new residential and commercial development to implement stormwater mitigation strategies, otherwise known as Low Impact Development (LID). Common LID techniques that mitigate the adverse impacts of stormwater runoff include on-site rain gardens and grass swales; the utilization of cisterns and rain barrels; and the installation of pervious pavement and sidewalks.

Solid Waste Disposal.
Enosburgh is a member of the Northwest Vermont Solid Waste Management District. A small number of private contractors serve residents with curbside pick-up of trash and recyclables; recycling is mandatory within the District. All solid waste disposal and planning are managed by the Northwest Vermont Solid Waste management District, as outlined in the district’s most recent Solid Waste Implementation Plan.

Telecommunications.
Accesses to telecommunication services are increasingly important to the security, quality of life and economic needs of residents and businesses. Cable, DSL, and cellular service are available in the Village and in select areas of the Town. Many town residents have access to high speed internet.

Telecommunication towers and related infrastructure require careful consideration. These structures tend to be located in highly visible locations such as on mountaintops and ridgelines. The need for additional facilities is projected to increase dramatically in the coming years. The Federal Telecommunications Act of 1996 placed certain limitations over municipal control of these structures; however, within those confines, Enosburgh must act to protect the community's historic character, rural nature, and aesthetic beauty.

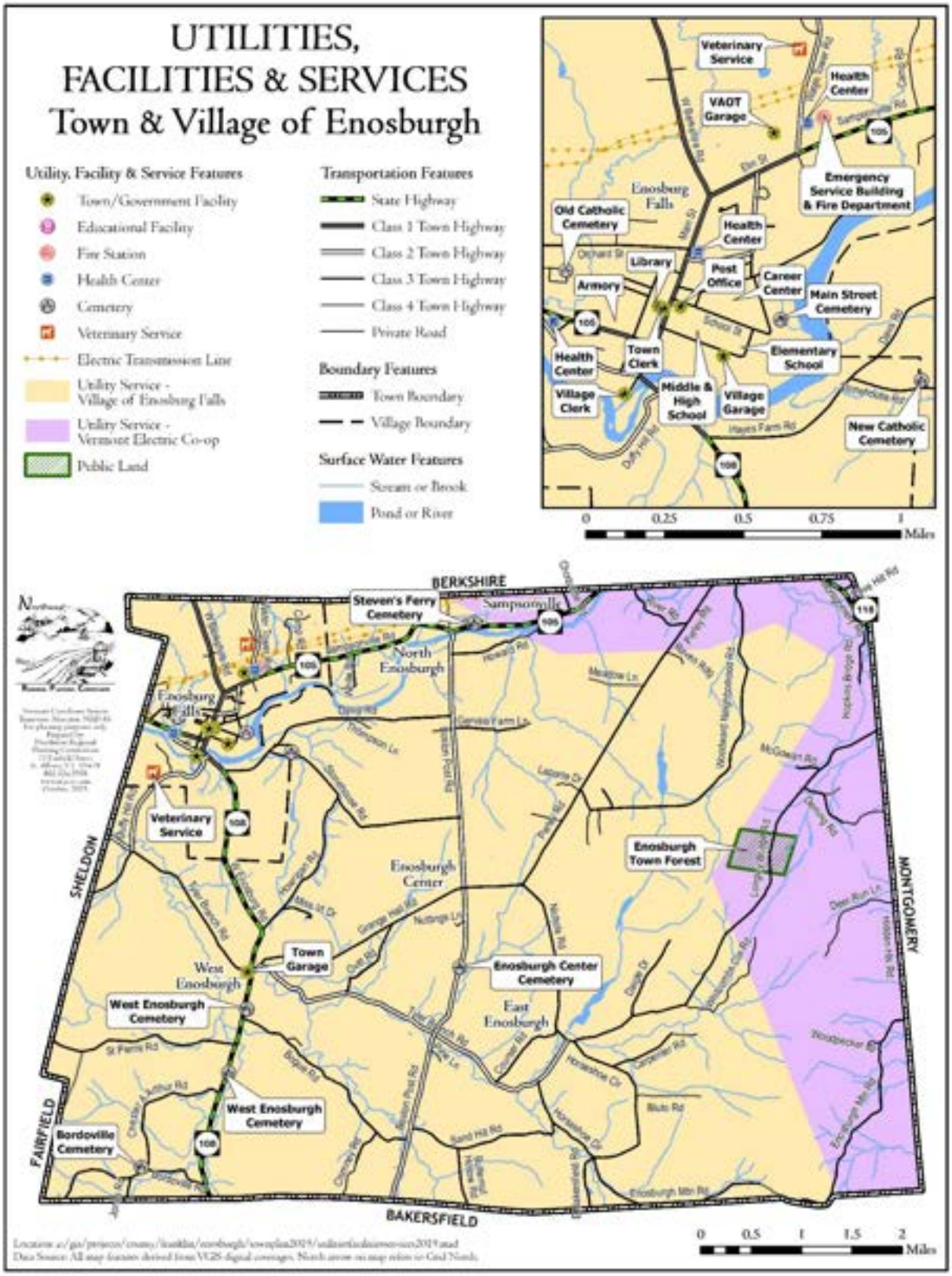
Public Buildings & Public Land.
Enosburgh residents have a long history of contributing land, infrastructure, and facilities to enhance the community's quality of life. For example, the B. J. Kendall Company constructed the Opera House and water system and, in 1899, Olin Merrill, the Kendall Company business manager, donated Lincoln Park and furnished quarters for the first public library on the Merrill Block.

Enosburgh has a variety of public land and facilities within its boundaries; however, many of these properties are not in active use. Since land in public ownership is not taxed, it is important to consider present and future needs and potential use of these properties so that they can be properly managed, used, or disposed of to generate funds for management of other properties that better serve the needs of the community. A listing of properties in public ownership in Enosburgh is provided in Appendix C.

Library.
Enosburgh maintains a free library that is located on Main Street behind the Town Clerk's office. Built in 1984, this modern facility houses over 20,000 titles in books, audio books, and videos. The hours for the Town library have been expanded and it now has both full-time and part-time librarians to better serve the public. The library does meet the State standards for library facilities and services.

The Enosburgh Public Library promotes reading and literacy for everyone in the community, provides a safe and welcoming environment, and offers current and significant material as well as information resources.

The Library's focus of its services is on the development of interest and proficiency in reading, particularly reading for pleasure. The library provides access to learning of all kinds through its collection and programs, through Inter-Library Loan and internet access, and through collaboration with groups, the schools and individuals. It also serves as a gathering place for discussion and a center of the community.



Map 7.1. Utilities, Facilities and Services in Enosburgh

Municipal Clerk's Office.
The Town of Enosburgh and the Village of Enosburg Falls maintain separate offices. In 2014, Enosburg Falls relocated its administrative offices and completed substantial renovations to the new site. These offices are of adequate size for Village administrative functions for at least 5 years. There is a need for more space at the Town of Enosburgh's administrative offices. However, there are no current plans to move or expand the Town's offices.

Cemeteries.
Enosburgh has several cemeteries in town and in the village area which are maintained by private citizens and associations. Occasionally, the cemetery in East Enosburgh receives help from the Town in the form of equipment or town employees for maintenance. Table 7.2 provides a list of cemeteries in the Town and Village; these facilities are also listed on Map 7.1:

Table 7.2. Cemeteries

CEMETERY	LOCATION	OPEN CAPACITY
Missisquoi	Enosburg Falls	Over 100 single lots
St. John the Baptist	Enosburg Falls	Over 100 single lots
Main Street	Enosburg Falls	Full
Bordoville	Bordoville	-
Enosburgh Center	Enosburgh Center	-
Bessay	Stoneville/East Enosburgh	-
Steven's Ferry	North Enosburgh	-
West Enosburgh	West Enosburgh	-

Enosburgh should plan to ensure that adequate space is available for future needs. One option is to determine if there is land available that could be reserved for future expansion of the existing cemeteries. The municipalities should also ensure that funding arrangements are made for long-term maintenance of cemeteries.

Rescue Services and Fire Protection.
Rescue services and firefighting services are two services that are absolutely essential for communities to function. Enosburgh has volunteer organizations that provide both of the community's emergency services. The organizations are made up of dedicated members who are on call twenty-four hours a day. Members of both organizations are qualified and trained through State and local training programs.

Photo: Emergency Services Building (Photo Credit: Janice Geraw).

Both services participate in the mutual aid compact in Franklin County and bordering

Canadian communities. When needed, they assist with trucks, heavy equipment, and personnel at emergencies including fires, accidents, and disasters.

Fire protection services are housed in the new Emergency Services Building on Route 105 north of the Village. Currently, there are twenty-six volunteer members who serve on the department. The annual budget for 2012-2013 is level funded at $123,300 for the fire department. The department responded to 99 calls in 2012, all calls outside of Enosburgh (29) were for fires (mutual aid) or for vehicle accidents (heavy rescue). They have also developed fire protection plans and mapped accessible water sources throughout the Town in order to provide all residents with maximum protection. The Fire Department has stated that fire hydrant pressure remains a concern, especially in the Central Business District. While the Village has made substantial progress on this issue by installing new water lines in the northern section of the Village, further improvements are needed to ensure the safety of residents.

Existing equipment for the department is provided in Table 7.3; funding for equipment comes from property taxes and grant funds. There is a yearly $5,000 vehicle replacement fund which is funded from the department's budget. It is not anticipated that any of the current equipment will need replacing within the next five years however funding is needed to continue repairs for the older equipment.

Table 7.3. Equipment Inventory

Vehicle	Manufacture Date	Anticipated Replacement
Fire Pumper/Tanker	1992	As funds and grants allow
Fire Pumper/Tanker	1995	As funds and grants allow
Fire Pumper/Tanker	2017	As funds and grants allow
Fire Pumper/Tanker	2006	As funds and grants allow
Ambulance	2013	As funds and grants allow
Ambulance	2017	As funds and grants allow

Source: 2020 Vehicle and Mobile Equipment Schedule

Enosburgh's Ambulance Service is also located in the new Emergency Services Building. The service is equipped with three ambulances that currently meet the needs of the service. The ambulance service pays sixty percent of the building's operating and maintenance costs. Currently, families are encouraged to subscribe to the ambulance service by paying a household fee. For the year ending in 2012, ambulance service expenses were $447,375 while their revenue was $371,389. Enosburgh provides ambulance services to the Towns of Berkshire, Bakersfield, and Franklin. The Enosburgh Ambulance Service also provides advanced Emergency Medical Training personnel for these communities when needed. The ambulance service responded to 760 calls in 2012.

The Town of Enosburgh, together with the Village, has adopted a Rapid Response Plan for responding to emergencies. This plan will be updated yearly. The 911 emergency system has also been implemented.

Law Enforcement.

The Vermont State Police and the Franklin County Sheriff's Department are responsible for public safety and law enforcement in Enosburgh. The State Police have a barracks in St. Albans

with dispatching services based out of the Williston barracks. The Franklin County's Sheriff's Department covers Franklin County and contracts with individual municipalities requesting additional police services. A contract with the County Sheriff's Office provides a School Resource Officer available to schools in the School District. Crime statistics for the region can be obtained from the Department of Public Safety – Criminal Justice Services.

Recreational Facilities and Programs.

The Enosburgh area offers a variety of public and private recreation opportunities, ranging from parks, athletic fields, public access to the river, and trail networks. There are two Village parks, which provide quiet, open spaces. These include Lincoln Park and Maple Park.

Above: Lincoln Park. Below: Missisquoi Valley Rail Trail (Photo Credit: Janice Geraw).

The Missisquoi River offers many opportunities for recreation, tourism and enhancement of the Village Commercial District and surrounding areas. The 740-mile Northern Forest Canoe Trail is located on the Missisquoi River and hosts a primitive campground. A new public access to the Missisquoi River is provided by Island View Park, a 7-acre parcel on Duffy Hill Road that was obtained with the assistance of the VT River Conservancy. The Village also hosts the Brownway River Trail, an easy 0.9-miles trail that runs alongside the Missisquoi River taking you through fields, forests and floodplains, perfect for hiking, walking and snowshoeing. The Elementary School maintains a storywalk along the trail during the summer.

There are athletic fields located adjacent to the high school on School Street and additional athletic fields are located by the Town Emergency Service Complex which was secured by the Enosburgh Recreation Committee. The facilities at the Enosburgh recreation fields also includes one little league ball fields, a basketball court, a soccer field, and a walking trail. The Recreation Committee received a 2019 Municipal Planning Grant to complete a master plan to renovate the Enosburgh Recreation Fields and improve the offerings for all segments of the community. The Village is in the process of securing the right-of-way necessary to construct sidewalks on the north side of Route 105 to provide safe pedestrian access the recreation fields, funded by a Vermont Bicycle and Pedestrian Grant.

Throughout Enosburgh there are trail networks used by snowmobiles, skiers, and all-terrain vehicles. The town also manages a Town Forest accessed off of Longley Bridge Road and available for hiking/walking. It is referenced further in Chapter 4: Natural Features.

The most significant year-round multi-purpose recreational trail in the Village is the Missisquoi Valley Rail Trail, which connects Enosburgh with Richford to the north and St. Albans to the south. The trails' overall length is 26.4 miles. Mile marker 16 to l7 runs through the Village. Marker 17 to l9 through rural Enosburgh and 19 to 21 through North Enosburgh. As quoted from the Guide to the Missisquoi Valley Rail Trail "The landscape offers postcard-perfect views of the Missisquoi River rapids, Jay Peak, and adjacent farms". Working with the Village Trustees and Selectboard, the Planning Commission is committed to supporting this community treasure. Promoting the MVRT as an economic development tool was one of the main goals of the Vital Village master planning process.

The Enosburgh Recreation Committee opened the Enosburgh Community Center, located at 140 Missisquoi Street. This is space is used year-round to increase indoor recreational opportunities in Enosburgh and surrounding areas, by offering indoor games, community events, enrichment classes, free community meals, meeting space for community groups, and more.

Commercial recreation in the area includes a bowling alley and an 18-hole golf course.

While there are various recreation opportunities available to young and old in Enosburgh, the Planning Commission is unsure whether all recreation needs are sufficiently met. A community wide discussion on needs and gaps in current recreation opportunities is needed before any specific recommendations for additional recreational facilities can be made.

Health Services.
Residents of Enosburgh, as well as those of the surrounding communities, are currently served by a number of private and public health care providers located mainly in the Village. A variety of individual and group practices offer a range of health services in the area including general medicine, pediatrics, physical therapy, gynecology, mental health services and home health. Emergency health care services are offered at hospitals in St. Albans, Morrisville, and Burlington. There are two veterinary services located in Enosburgh.

Community Health.
The town and village of Enosburgh values the health and well-being of all residents. The major threats to population health are categorized into three priority areas: Substance Misuse, Chronic Disease, and Mental Health. Substance misuse rates are continuously increasing among youth and adults, over 50% of deaths in the region are contributed to preventable chronic diseases, and there is an increase in the amount of poor mental health days and mental health crisis arising in the Northwest region. These community health threats carry a great economic burden both statewide and locally. However, data shows that when a population has good health, economic growth rates also increase. Prevention works, saving money and lives long term. Unhealthy communities see the effects in all sectors of society. Employment, health, public safety, and education are all negatively impacted when populations are facing addiction, mental health crisis and chronic disease. The town and village of Enosburgh will engage in non-regulatory and

regulatory prevention efforts with the help of key community partners, coalitions, and government entities to decrease youth substance use, chronic disease prevalence, and poor mental health.

Childcare Services.

Childcare is a strong concern for existing and prospective families with young children, whether it means finding quality services or securing the costs of services. High quality, affordable childcare is a critical component to supporting a stable workforce.

According to the Vermont Department for Children and Families/Child Development Division (as of August 2019), Enosburgh has four registered childcare homes and two licensed centers. The total capacity of these facilities is roughly 117 children; infant capacity is generally limited. According to the 2017 American Community Survey, in Enosburgh 134 children were under 5 years of age and 143 children were between the ages of 5 and 9. While the data do not allow for a direct look at what portion of the population needs are being served, these figures can provide an estimate of potential need.

Enosburgh Households

87% of family households with children under 6 years have both parents in the workforce.

70% of family households with children aged 6-17 have both parents in the workforce.

39% of family households are single parent with children under 18 years.

Source: 2013-2017 American Community Survey

It is difficult to assess the availability and quality of childcare in the community. For instance, childcare openings in Enosburgh may also be filled with children from adjacent municipalities and likewise Enosburgh children fill spots in adjacent communities and St. Albans. Further data on other childcare options, such as grandparents, siblings, stay at home parents, un-registered childcare homes or other opportunities, and the quality and affordability of existing services is not available.

It is important to note that the childcare industry can contribute to the local economy by creating jobs and supporting a stable workforce. The accessibility, affordability, and quality of child care may affect a parent's ability to enter and remain in the workforce and to be a productive employee.

Goals, Policies and Recommendations.

GOALS

- Provide public utilities and services in a manner that supports existing development and facilitates future growth at the appropriate time, scale, and location.
- Ensure community services and facilities meet the needs of local residents of all ages without undue or sudden impacts upon local property taxes.
- Protect public health and water supplies in areas without municipal services.
- Ensure that the regulation of land development in Enosburgh does not negatively impact the availability of safe and affordable childcare.
- Ensure a safe community that is committed to fostering the health and well-being of all residents.

POLICIES

- Coordinate the extension and upgrade of water, sewer, and power lines with planned growth of the community.
- Maintain communication and cooperation with the Town of Berkshire to ensure proper land management within the Well Head Protection Area.
- Ensure that individual on-site septic systems and water supplies are sited and installed in a manner that protects public health and the quantity and quality of ground water.
- Where co-location of telecommunications facilities with other towers or structures is not feasible, new structures must be sited in appropriate areas, respecting the integrity of residential areas, aesthetic concerns, and natural resource issues.
- Investigate alternative technologies for wastewater treatment.
- Promote and encourage the development of recreational opportunities for all ages and ensure safe, convenient access to all recreation facilities is provided.
- Ensure regulation of land development does not negatively impact the availability of safe and affordable childcare.
- Provide sufficient space and facilities to carry out essential municipal functions.
- Provide emergency services and law enforcement to protect the health, safety, and property of residents and visitors.
- Encourage participation in the Emergency Subscription Program.
- Encourage patterns of land use, transportation strategies, and street design to promote walking, biking, and access to healthy foods for all.
- When considering future development within the community, identify vacant lots or unutilized spaces where parks, trails, or safe open spaces could be built and used for community gardens, community centers, Farmer's markets, or other shared community spaces.
- Enosburgh will support regional youth substance prevention groups and coalitions that discourage underage substance use.
- The town will support strategies that reduce the stigma associated with addictions and mental health problems.

Chapter 8: Transportation Planning

Transportation planning at the State, Regional, and Local level should have two primary functions. The *first purpose is to ensure that people and goods are able to move freely, safely, and efficiently using all modes of transportation*. This includes, where applicable, highways, local roads, railroads, airports, bicycle paths, pedestrian routes, ferry systems, and public transit. Transportation efficiency includes consideration of energy use, economic and social costs, and time. People and goods move with the assistance of more than one mode; therefore, transportation planning should consider how the different modes of transportation could complement each other.

The *second purpose of transportation planning is to help guide growth in appropriate locations identified through land-use planning*. Growth management can be assisted by directing construction or transportation improvements in coordination with local and regional plans into areas favorable for growth and away from environmentally sensitive areas.

Town of Enosburgh and the Enosburg Falls are active participants in the Regional Transportation Advisory Committee (TAC). The TAC serves to advise the Northwest Regional Planning Commission's transportation planning program, acts as a liaison between local communities and the Vermont Agency of Transportation (VTrans), and provides local and regional input regarding transportation issues important to the region

History.

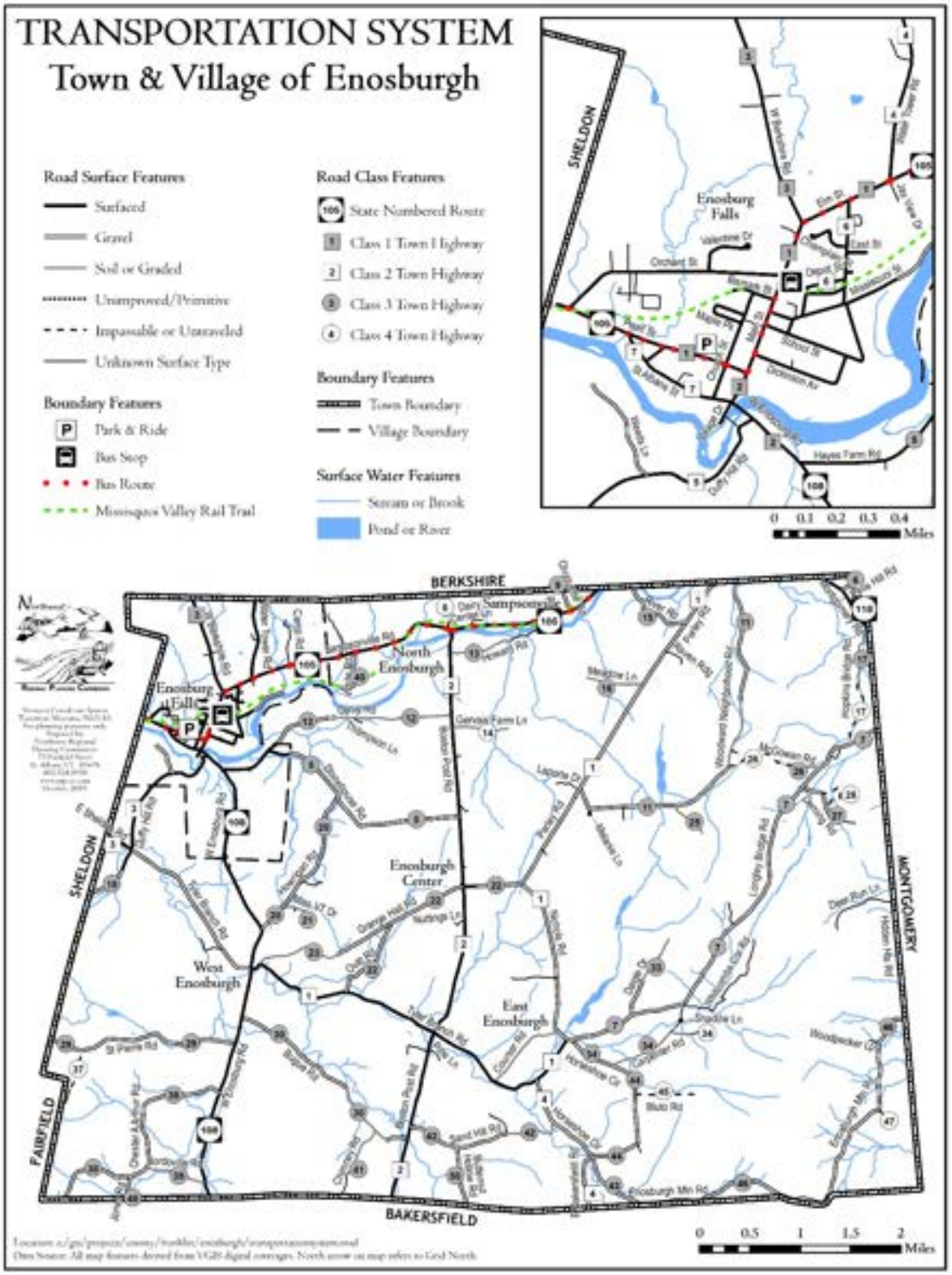
The completion of the Missisquoi Valley Railroad in 1871 brought new businesses, homes, and the need for an expanded road system to Enosburg Falls. Depot, Pleasant, Orchard, Church, and Pearl Streets were all added to accommodate the new growth. Historical records clearly demonstrate the way that the quality and location of the transportation systems affects the location, density, and intensity of local land use; however, land use decisions can have and do have dramatic impacts upon the function of the transportation network.

Local Roads.

The Enosburgh Transportation System Map 8.1 shows the state and local highways, combined the Town and Village have approximately 77.6 miles of local roads and 9.4 miles of State Highway along Route 105, 108 and 118. Vermont classifies roads into four categories based on the role that a road plays in serving the flow of travel through the road network; Table 8.1 presents the amount of mileage of each category per municipality. Factors such as average speed, convenience, access and the adjacent land use, and the types of travel a road carries all affect how the roads function and serve the needs of its diverse users.

Table 8.1. Mileage of Highway by Classification in Town and Village

Miles of Road:	Class 1	Class 2	Class 3	Class 4
Village	2.4	3.3	4.5	-
Town	-	17.5	45.8	4.1



Map 8.1. Enosburgh Transportation System

Classifying Roads

Class 1 Town Highways
Those town highways which form an extension of a state highway route (usually in a downtown area) and which carry a state highway route number. These routes have shared maintenance responsibilities between VTrans (responsible for scheduled surface maintenance or resurfacing and center line pavement markings) and the municipality (responsible for pothole patching, crack filling, crosswalks, and parking).

Class 2 Town Highways
Those town highways selected as the most important highways (after State roads) in each town. They are generally selected with the purpose of securing trunk lines from town to town and to places that by their nature have more than the normal amount of traffic. Municipalities maintain however VTrans is responsible for line pavement markings.

Class 3 Town Highways
These make up the majority of local roads. The minimum standard for Class 3 highways states that they must be maintained to a standard where a pleasure car could negotiate them under normal considerations, all seasons of the year. This would include, but not be limited to, sufficient surface and base, adequate drainage, sufficient width, and suitable for maintenance.

Class 4 Town Highways
Includes all other town highways. Selectboards determine which roads will be Class 4 town highways. These are not required to be maintained by the municipality.

Roadways are also categorized by a functional classification system to describe each type of road. Functional classification organizes the highway network according to the function or role that each highway has to fulfill. These roles include providing for through movements and for access to adjacent properties. These include principal arterial – Interstate, principal arterial – other, minor arterial, major collector, minor collector, and local. Vermont Route 105 is considered a minor arterial and Vermont Route 118 is considered a major collector.

Roadway improvements in the form of paving and widening may be needed in the years to come. The decisions to perform this work should be made by the voters after local officials make recommendations.

Maintenance of the Local Transportation Network.

In addition to the 76 miles of local highways, the Town and Village are responsible for maintaining a network of bridges and culverts that assist in the conveyance of stormwater runoff and ensure the safe passage of motorists, pedestrians, and other travelers. General maintenance of the local transportation network is the responsibility of the Enosburg Falls Public Works Department and the Town of Enosburgh Highway Department.

The Enosburg Falls Public Works Department has three employees and owns the following equipment:

2000 Elgin Pelican Street Sweeper	2015 International Plow/Dump Truck
2017 ¾ ton Chevy Truck with Dump	2014 John Deere Loader Backhoe
2019 F550 Ford Pick Up Truck	2013 3320 John Deere Tractor (Snow blower/Mower)

There is a replacement fund, which receives yearly allocations for Public Works Department equipment. The Pelican Sweeper may need to be replaced in the next 5 years. The Public Works Department Garage is adequate in terms of space and condition for the near future. The Department is currently developing plans for a new storage facility to replace the Duffy Hill Barn that has been removed as well as a capital budget for equipment replacement.

The Town of Enosburgh Highway Department has four employees and owns the following equipment:

2017 International Dump Truck	2014 International Dump Truck (14 Yd**)**
2014 Ford F550 4 X 4	2006 John Deere Backhoe 772D Motor Grader with 13ft blade
2011 International Dump Truck (14 Yd)	2008 5445 John Deere Bucket Loader (3 cy)
2011 Chipper Bandit (12 in capacity)	2010 John Deere 120 D Excavator
2004 Trailboss (20-ton trailer)	1988 Eager Beaver (Trailer)

The Town Garage was recently expanded in 2010 to meet current needs and it is anticipated to do so in the future.

To guide highway construction and maintenance, VTrans recommends the adoption of "*Town Road and Bridge Standards*". These standards have provisions to ensure investments in town highways are protected with proper drainage, ditching and construction techniques while also improving safety, reducing long-term costs and addressing environmental concerns.

Planning to address future needs and improvements can be facilitated by the development of a municipal capital plan to guide decisions typically over a five-year period. These plans can cover various topics such as detailing community-wide needs and assigning a priority to address them to the scheduling of maintenance and improvements as well as equipment replacement.

Traffic.

Traffic flow will vary depending on various factors such as the time of day, the day of the week, the season, the location of the road, and the weather conditions. The major influences on the traffic flow in Enosburgh are local businesses, local civic and social functions, recreational activities, and seasonal activities such as hunting, fishing, skiing, hiking, and foliage viewing. Table 8.2 shows the average annual daily traffic (AADT) count for Enosburgh's major routes. Increases in daily traffic along routes are thought to be attributed to more commuters traveling through area as well as more seasonal traffic traveling to Jay Peak Resort. The Planning Commission also noted that Stonehouse Road and Davis Road are also seeing increases in traffic volume in recent years.

Route	Observation Point	1992 AADT	2002 AADT	2012 AADT	2018 AADT	% Change 1992-2012	% Change 2002-2012	% Change 2012-2018
105	Pearl St, just W of Church St	-	4200*	3800	3800	-	-9.5%↓	0.0%
105	Main St, between Depot St and W Main St	-	7600*	7900**	7300	-	4.0%↑	-8.8%↓
105	Elm St, between Pleasant St and Water Tower Rd	4900	7300	8400**	7600	71.4%↑	15.1%↑	-9.5%↓
105	Sampsonville Rd, between Boston Post Rd and Berkshire TL	3600	-	4300	4700	19.4%↑	-	9.3%↑
108	W Enosburg Rd, between Bakersfield TL and Tyler Branch Rd	1100	1400	1300	1400	18.2%↑	-7.1%↓	7.7%↑
108	W Enosburg Rd, between Tyler Branch Rd and Hayes Rd	1800	2000	1900	2000	5.6%↑	-5.0%↓	5.3%↑
108	Between Hayes Rd and Duffy Hill Rd	2300	2700	2400	2500	4.4%↑	-11.1%↓	4.2%↑

Source: VTrans, AADT 1975-2012 for VT State Highways; VTrans, 2018 (Route Log) AADTs State Highways
*Count data from 2004, ** Count data from 2010.

Table 8.2. A Comparison of Observed Average Annual Daily Traffic (AADT) Counts on Major Highways in Enosburgh (1992-2018)

Route	Observation Point	1992 AADT	2002 AADT	2012 AADT	2018 AADT	% Change 1992-2012	% Change 2002-2012	% Change 2012-2018
105	Pearl St, just W of Church St	-	4,200*	3,800	3,800	-	-9.5%↓	0.0%
105	Main St, between Depot St and W Main St	-	7,600*	7,900**	7,300	-	4.0%↑	-8.8%↓
105	Elm St, between Pleasant St and Water Tower Rd	4,900	7,300	8,400**	7,600	71.4%↑	15.1%↑	-9.5%↓

105	Sampsonville Rd, between Boston Post Rd and Berkshire TL	3,600	-	4,300	4,700	19.4%↑	-	9.3%↑
108	W Enosburg Rd, between Bakersfield TL and Tyler Branch Rd	1,100	1,400	1,300	1,400	18.2%↑	-7.1%↓	7.7%↑
108	W Enosburg Rd, between Tyler Branch Rd and Hayes Rd	1,800	2,000	1,900	2,000	5.6%↑	-5.0%↓	5.3%↑
108	Between Hayes Rd and Duffy Hill Rd	2,300	2,700	2,400	2,500	4.4%↑	-11.1%↓	4.2%↑
Source: VTrans, AADT 1975-2012 for VT State Highways; VTrans, 2018 (Route Log) AADTs State Highways *Count data from 2004, ** Count data from 2010.								

Condition of Roads.

Sufficiency ratings are used by the VTrans to evaluate the State's roadways. The rating is based on three different factors: structural condition, safety, and efficiency of movement. According to the VTrans 2008 Sufficiency Ratings, in Enosburgh sections of Route 105 has sufficiency ratings of poor to bad and Route 108 has sections of roadway with fair to poor ratings. Highways with sufficiency ratings in this range are candidates for repair. State highways are important segments of the transportation system; the municipalities should monitor this information and coordinate with VTrans on condition concerns.

As was noted in the 1993 Village Plan and again in the 2002 Plan, the Enosburg Falls Public Works Department is having difficulty keeping up with maintenance of the Village roads due to increases in traffic flow and lack of adequate funding. The 2007 Village Survey asked respondents to rate the quality of Public Works Department services with 1 being excellent and 5 being poor. While 42% gave the department a rating of 2 out of 5 and 15% a rating of 3 out of 5, 21% rated the Public Works Department at 4 and another 15% at 5. Residents in the 2002 Enosburg Falls Village Survey were asked to grade the quality of Village roads. 88% of those responding to the 2002 survey question said that streets were fair or poor. The results of these surveys clearly indicate that the improvement and maintenance of Village roads should remain a high priority for Village management.

Since this survey, Enosburg Falls was able to complete three paving and improvement projects from 2009-2012 with funding received from a 2005 Federal Transportation Earmark. Improvements were made on Dickinson Avenue, School Street, and Pleasant Street. In 2015, Enosburg Falls received a grant to upgrade and pave Duffy Hill from Island View Park to the Village/Town line. In 2019, the Village paved four roads: Hayes Farm Road, St. Albans Street,

Railroad Street, and Village Drive. In addition to paving projects, the Village repaired and added sidewalk along Pleasant Street in 2016.

State and Town Bridges.

In the town road system, the maintenance of the bridges is a tremendous asset to Enosburgh, drawing considerable tourist attention and adding scenic beauty to the area. Enosburgh has four (4) State bridges and eleven (11) Town bridges. The Village completed repairs to the Bridge of Flowers & Light in 2016.

VTrans also uses a sufficiency rating method to evaluate the conditions of the bridges. Bridges are ranked with a numerical score from one to one hundred, with one hundred being the best. A structurally deficient bridge with a rating less than 50.0 is eligible for federal replacement funding; a bridge with a rating of 50.0 to 80.0 is eligible for federal rehabilitation funding. Covered bridges and steel truss bridges often have lower sufficiency ratings even though they may be structurally sound. The lower rating may be due to a bridge's width, low clearance or inability to carry heavy loads. Because covered bridges are a historic asset, they are not held to the same standards as other bridges. A lower sufficiency rating does not necessarily indicate replacement is needed. It should be noted that the town structure B48, is a temporary bridge and is currently in the VTrans Capital Budget and planned for replacement. Table 8.3 is a listing of State and Town bridges and their sufficiency ratings.

Table 8.3. Bridge Sufficiency Ratings for State and Town Structures

Bridge Owner	Bridge #	Route Carried or Road Name	Location	Feature Crossed	Year Built	Sufficiency Rating
State	B46	VT 108	4.2 Miles South JCT. VT 105 W	Brook and Cattle Pass	1952	83.2
State	B47	VT 108	3.3 Miles South JCT. VT 105 W	The Branch	1952	77.4
State	B50	VT 108	0.2 Miles South JCT. VT 105 W	Missisquoi River	1970	78.6
State	B48	VT 108	2.6 Miles S JCT. VT 105 W	Tyler Branch	1998	94.4
Town	B52*	Hopkins Bridge Rd	JCT. W VT 118	Trout River	1998	34.8
Town	B45	Sand Hill Rd	0.2 Miles To JCT. C3 TH 43	Tyler Branch	1911	19.7
Town	B12	Boston Post Rd	JCT. VT 105	Missisquoi River	1929	59.2
Town	B09	Longley Bridge Rd	0.1 Miles To JCT. C2 TH 1	Beaver Meadow Brook	1919	97.9
Town	B48	Boston Post Rd	JCT. C2 TH 1	Tyler Branch	2014	--
Town	B11	Tyler Branch Rd	0.1 Miles To JCT. C2 TH 1	Beaver Meadow Brook	1919	76.2
Town	B49	Nichols Rd	1.1 Miles To	Beaver Meadow	1948	31.2

Table 8.3. Bridge Sufficiency Ratings for State and Town Structures						
Bridge Owner	**Bridge #**	**Route Carried or Road Name**	**Location**	**Feature Crossed**	**Year Built**	**Sufficiency Rating**
			JCT. C2 TH 2	Brook		
Town	B50	E Bakersfield Rd	JCT. W CL 3 TH 43	Tyler Branch	1918	49.6
Town	B51	Tyler Branch Rd	0.5 Miles E JCT. TH 3	Tyler Branch	1980	85.9
Town	B10	Duffy Hill Rd	1.3 Miles S JCT. VT 108	Tyler Branch	1981	95.6
Town	B47	Boston Post Rd	0.1 Miles to JCT. C3 Th 42	Bogue Branch	1983	99.8
Source: VTrans Bridge Sufficiency Ratings, *Covered Bridge, originally built in 1875 and rebuilt in 1998.						

Pedestrian and Bicycle Facilities.

Enosburg Falls has a network of sidewalks throughout the Central Business District and the High-Density Residential neighborhoods, which provide safe and accessible routes for foot traffic throughout the community. Most streets have sidewalks on both sides of the street for particular sections; see the Map 8.2 for a map of sidewalk facilities in Enosburg Falls. There is an annual appropriation voted for sidewalk construction and maintenance, which receives yearly allocations at the Enosburg Falls annual meeting. Recent sidewalk projects include the repair and addition of new sidewalk along Pleasant Street in 2016 and implementing a community supported effort to extend the sidewalk network to the Enosburgh Recreation Fields across from Hannaford's, which is ongoing as of 2019. While the Village continues to work on sidewalk maintenance and construction annually, the Vital Village Master Plan (2019) noted that the condition of many sidewalks is poor.

Bicycle traffic in and around Enosburgh has increased in recent years. It has become a popular seasonal activity locally and in the surrounding areas. Enosburgh has become a favorite destination for both bicycle tours and road riders from Quebec, Canada and other parts of Vermont. On many of the local roads, the mixing of bicycles and auto traffic is potentially very hazardous. Local efforts to develop bicycle and pedestrian paths are currently underway in many communities in Franklin County including Enosburgh.

The Missisquoi Valley Rail Trail crosses Main Street in the center of the Village. This recreation trail spans from St. Albans City to Richford and is open to walkers, runners, cyclists, snowmobilers, cross country skiers and horseback riders. The Trail is part of a larger bicycle network known as the Lake Champlain Bikeways and is linked to a 350-mile route around Lake Champlain. *See the Recreational Facilities and Programs section in Chapter 7 for further discussion of the Rail Trail.*

The Enosburg Vital Village Project and a walk audit in June of 2019 with the national walkability expert Mark Fenton provided several recommendations to improve pedestrian and

bicycle facilities in the municipality, many of which are included in the recommendations for implementation.

Complete Streets.
In 2011, Vermont enacted "**Complete Streets**" legislation, mandating that new and renovated paved roads be designed to safely accommodate motorists, bicyclists and pedestrians of all ages and abilities. Roadways that are planned and designed using a Complete Streets approach may include: sidewalks, bike lanes (or wide paved shoulders), comfortable and accessible public transportation stops, frequent and safe crossing opportunities, accessible pedestrian signals, curb extensions, and narrower travel lanes. It is important that all new road projects take a complete street approach to design and implementation.

Public Transportation.
Local public transportation via buses and vans is provided by Green Mountain Transit (GMT). Residents in the northeastern section of Enosburgh may connect with the fixed route service at locations along VT 105 in Enosburg Falls. GMT also coordinates Medicaid and elderly transportation service. GMT's services are discussed further in Chapter 10 – Energy section of the Plan. Passenger bus service to destinations beyond Franklin County is available on Greyhound Lines from St. Albans.

Map 8.2. Existing Sidewalk Facilities in Enosburgh

Presently the nearest rail service for freight is in Richford (Montreal, Maine, and Atlantic Railway) and St. Albans (New England Central Railroad). Amtrak passenger service is available in St. Albans via a route that travels south to New York City and eventually Washington D.C.

The nearest airport is the Franklin County Airport in Highgate, which supplies local air service. Larger interstate and international flights are available at the Burlington International Airport, Plattsburgh International Airport, and at Mirabel and Trudeau airports in Quebec.

Specific Transportation Issues.
Excessive Speed on Orchard Street and Other Streets. Orchard Street acts as a de facto bypass to Main Street. It is used by cars as an alternate route to avoid congestion in the Central Business District. Excessive speed on Orchard Street as well as other streets is an issue and must be addressed. Excessive speed causes both a safety hazard and undue noise for a residential area. The Planning Commission will work with the Village Trustees in developing programs to slow traffic on Orchard and all other streets, to the posted speed limit.

Vital Village Master Plan Implementation. The Vital Village Master Plan (2019) was an extensive community strategic planning project, which resulted in recommendations relating to improving the vibrancy of Main Street and the safety and experience of pedestrians and cyclists. The first steps towards implementing 3 of the top-5 priorities of this plan is a scoping study for streetscape and wayfinding improvements to Main Street, the Missisquoi Valley Rail Trail intersection and Depot Street. The Village secured funds for this study through the Vermont Bicycle and Pedestrian Program and the study should be complete by the end of 2020.

Rendering of a conceptual curb bump-out and other improvements to Main Street from the Vital Village Master Plan.

Intersection with Route 105 and Hannaford Shopping Center. The intersection with Route 105, Watertower Road, and the Hannaford Shopping Center is unsignaled. The State of Vermont owns the Route 105 right-of-way and therefore is responsible for improvements. In 2007, the Village petitioned VTrans to evaluate the intersection to determine if it warranted a traffic light; however, VTrans maintains that the intersection does not yet warrant signalization. VTrans did make alternate improvements to the intersection including lowering the speed limit from 40 MPH to 30 MPH, and repainting the road marks on Route 105 and the intersection with Watertower Road. In addition, VTrans has posed the question to Enosburg Falls whether Watertower Road could be straightened to make a "T" at the intersection rather than a "Y" coming onto Route 105; Watertower Road is owned by Enosburg Falls and the village would be required to pay for such an improvement. No decision on this matter has been made.

Goals, Policies and Recommendations.

GOALS

- Provide for a safe, convenient, economic, and energy efficient transportation system that respects the natural environment and utilizes a variety of transportation modes.
- Maintain the physical state of municipal roads and associated infrastructure in good condition.
- Provide appropriate provisions for bicycle and pedestrian use on designated routes, including sidewalks, paths, proper signage and pavement improvements.

POLICIES

- Recognize the link between land use and transportation and coordinate transportation improvements to facilitate and complement the desired type, location, density, and timing of local development.
- Maintain good quality, safe local roads and streets, sidewalks, bridges, and equipment needed for their maintenance.
- Promote a safe, convenient, economic, and energy efficient transportation system for all users including public transit options and paths for pedestrians and bicycles.
- Pursue the implementation of "Complete Streets" designs whenever possible.
- Promote modes of transportation and activities that respect the natural environment.
- Maintain the scenic character of Enosburgh's rural byways.
- Support public transit efforts of Green Mountain Transit Agency to increase mobility and access for Enosburgh residents.

Chapter 9: Planning for Hazard Resiliency

Hazard Mitigation is any sustained action that reduces or eliminates long-term risk to people and property from natural and human-caused hazards and their effects. Communities can engage in opportunities to identify mitigation strategies and measures during all phases of Emergency Planning including Mitigation, Preparedness, Response and Recovery. Hazards may not be eliminated, but it is possible to determine what the hazards are, where the hazards are most severe and identify local actions that can be taken to reduce the severity of the hazard.

Hazard Mitigations Strategies and Measures **alter** the hazard by eliminating or reducing the frequency of occurrence, **avert** the hazard by redirecting the impact by means of a structure or land treatment, **adapt** to the hazard by modifying structures or standards or **avoid** the hazard by stopping or limiting development and could include projects such as:

- Flood-proofing structures
- Tying down propane/fuel tanks in flood-prone areas
- Identifying & modifying high traffic incident locations and routes
- Ensuring adequate water supply
- Elevating structures or utilities above flood levels
- Identifying & upgrading undersized culverts
- Proactive land use planning for floodplains and other flood-prone areas
- Proper road maintenance and construction
- Ensuring critical facilities are safely located
- Buyout & relocation of structures in harm's way
- Establish & enforce appropriate building codes
- Public information

Both the Town of Enosburgh and the Village of Enosburg Falls are actively engaged in hazard mitigation planning; both communities are represented on Local Emergency Planning Committee District 4 serving Franklin County and are members of the Franklin County International Firefighters Association Mutual Aid. Additionally, the Town of Enosburgh adopted a Local Hazard Mitigation Plan (LHMP) on March 17, 2008 that evaluates potential risk to the community and strategies that address those risks. The LHMP evaluated just those natural and human made hazards that are likely to affect the community. The following are a list of hazards that have high to moderate risk for the community, including:

- Flooding
- Fluvial erosion/landslide
- High Winds
- Structure Fire
- Winter Storm

Rising Waters.
Enosburgh lies within the Missisquoi River watershed and has the Missisquoi River running through the northwest section of the Town and Village (see Map 9.1). The Tyler Branch, one of Missisquoi's tributaries, flows through the southwestern part of the community and flows into Missisquoi in the neighboring Town of Sheldon.

Flooding has been identified as the worst natural hazard within the community. The Missisquoi River and many of its tributaries flood in the spring of each year when snow melts and the spring rains cause them to overflow their banks. Ice jams also cause flooding on the Missisquoi, contributing to field and bank erosion. Enosburgh's LHMP lists the history of flood events in the community. Based on the USGS data on the Missisquoi River, several flood events greater than the 25-year flood have occurred over the last 20 years; a 25-year flood has a 4% chance of being exceeded in any one year.

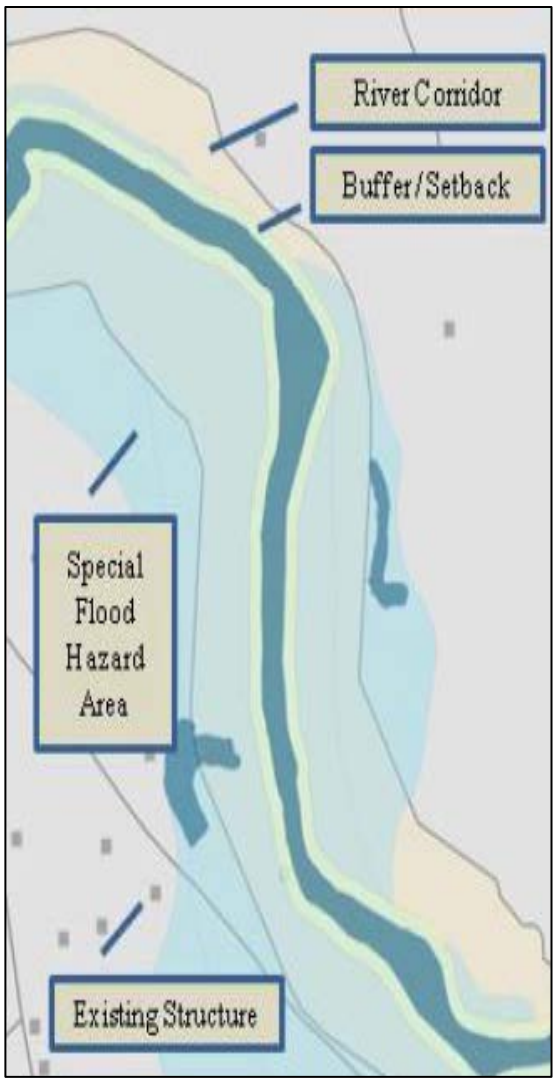


Figure 9.1. Depiction of the Special Flood Hazard Area, River Corridor and Riparian Buffers

The Federal Emergency Management Agency (FEMA) defines a floodplain as an area of land adjacent to rivers and streams that is subject to recurring inundation.

Development within floodplains can have many potentially damaging consequences, as construction may obstruct the natural flow of water or displace soil and raise base flood elevations.

A strategy to mitigate potential encroachment and flood loss is to use river buffers or a delineated river corridor as a planning tool to reduce future development in these areas.
and flood loss is to use river buffers or a delineated river corridor as a planning tool to reduce future development in these areas.

Flooding is a natural occurrence and happens when water rises and inundates the adjacent low-lying land. Residents of every town should be aware of the power inherent in a flood. Proper

management should be used to ensure that critical floodplain areas are being used appropriately. Development within floodplains poses significant risks and should generally be avoided. River channels and floodplains function as a single hydrologic unit, periodically transferring floodwaters and sediment from one to the other. Appropriate uses of floodplains are those that can accommodate this cycle and allow for areas where the rivers can access the floodplain during high flows. Examples of uses that are appropriate to floodplains include agriculture, open space, and recreation.

Structures in Floodplain.

The Federal Emergency Management Agency (FEMA) provides flood insurance under the National Flood Insurance Program (NFIP). In order for property owners to participate in the NFIP, FEMA requires that communities adopt flood hazard regulations. Owners of buildings within the designated special flood hazard areas (SFHA) are required to carry flood insurance in order to get a federally backed mortgage. Both the Town of Enosburgh and the Village of Enosburg Falls have adopted land use regulations for flood hazard areas in order to protect the health, safety, and welfare of its residents and to allow the community to participate in the National Flood Hazard Insurance Program. As of September 2013, property owners in the Town of Enosburgh have 4 flood insurance policies through the NFIP covering $879,200 and 3 flood insurance policies covering $557,000 in value are within the Village of Enosburg Falls. Currently there are four policies in force for structures in the Special Flood Hazard Area. Since the community participates in the NFIP, flood insurance is available to any structure in town regardless of previous losses. Insurance information is available at www.floodsmart.gov.

It is important to note that the existing Flood Insurance Rate Maps (FIRMs) are dated January 2, 1981 and Flood Insurance Study was published in December 1979. While this information is the best available, the hydrology that these maps are based on has not been updated since the study in 1979 and therefore does not account for shifts in the river location or effects of development since 1979 in these areas. The FIRMs were digitized by the Northwest Regional Planning commission in 1999 to assist in planning efforts and are used to determine approximate locations. The digital version is not used for regulatory rulings.

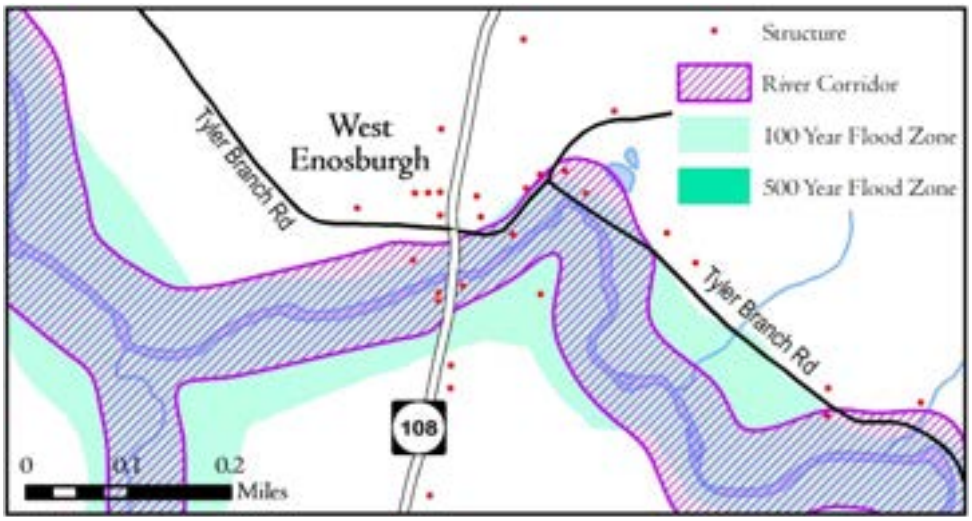


Figure 9.2. Enosburgh e911 Structures in Flood Hazards and River Corridor Area

There are currently twenty-three structures that reside within the Special Flood Hazard Area (Zone A or 100-year floodplain) based on a GIS overlay analysis using e-911 structure locations (December 2012) and the digitized 1981 Flood Insurance Rate Maps. These structures have a 1% change of flooding. The structures include one multi-family dwelling, four mobile homes, one commercial property and seventeen single-family dwellings. Any mortgages, grants, or loans (including disaster aid) for a structure in the Special Flood Hazard Area must secure flood insurance.

Additionally, seven structures are identified to be within the extent of the 0.2% annual chance flood hazard (Zone B or 500-year floodplain). These include one camp, two industrial sites, and four single-family dwellings. One of the industrial sites is a village owned building on Village Drive. Federal capital funds may not be invested in facilities located within the 0.2% and 1% annual chance flood hazard areas.

Structures located within Zones A and B represents 2% of all structures in the community. The utility of these facilities before, during, or after flooding may be impaired therefore Enosburgh should identify the impact to community services should these structures be at risk from flooding.

What is a River Corridor?

Rivers are very dynamic and have the ability to change course and create new channels or widen the existing channel. A river corridor includes lands adjacent to and including the channel of a river. A corridor defines the land area where the river will move into overtime as it naturally changes its course.

Fluvial Erosion in the River Corridor.

Fluvial erosion, erosion caused by the lateral and vertical movement of streams and rivers, and landslides are becoming more common within the Northwestern region of Vermont. The VT Department of Environmental Conservation recommends that the community identify *River Corridors*, or the area along the larger tributaries and rivers, that are susceptible to stream channel adjustment in order to reduce the risk of erosion damage. Historic land uses along the river and its streams including floodplain encroachments and vegetative debris removal have increased the risk of erosion and landslides.

In 2005, a Phase 2 Stream Geomorphic Assessment in the Tyler Branch watershed was performed to map the river corridor and infrastructure (bridges and culverts) were assessed to identify those that are at risk from river adjustment. The assessment noted that nearly all of the reaches have a sensitivity of high to very high with the potential for further widening of the stream channel and bank erosion; because of this many areas of the river have layered the bank with large rock to limit the potential areas of bank erosion. This method, called rip-rap, can increase the speed of the water which also adds to the strength of the flow and increasing erosion potential in unprotected areas.

The geomorphic assessment recommends that areas with limited riparian buffer, those most sensitive to further widening, should be targeted for buffer reestablishment and/or active bank

stabilization to limit potential property loss from erosion. Also, bridges that are slightly undersized act as local channel and floodplain constrictions and should be upgraded. Since 2005, the Town and the Missisquoi River Basin Association have been considering restoration and corridor protection projects identified within the assessment.

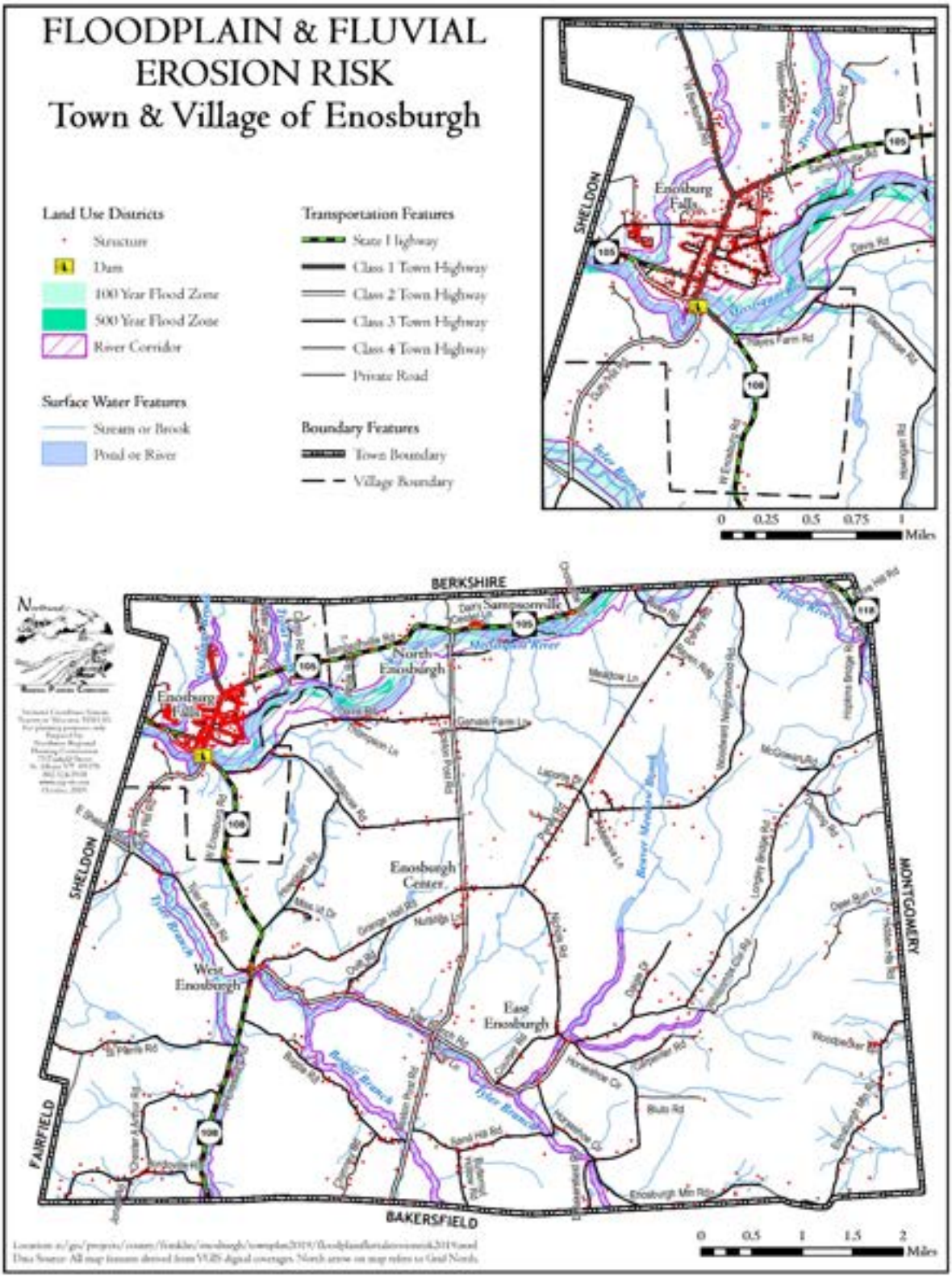
Infrastructure placed too close to streams and rivers is particularly exposed to damage from flash flooding, bank failure, and stream channel dynamics. Fifteen structures fall within the River Corridor along the Tyler Branch including one camp, one government facility, three mobile homes, and ten single-family dwellings. The Town Highway system within the watershed has experienced many erosion events during periods of high precipitation and rapid run-off along roads within proximity of Tyler Branch and its tributaries including: TH-30 along Bogue Brook; TH-1 along Tyler Branch; TH-1 and TH-7 along Beaver Meadow Brook; VT 108 along The Branch. Erosion concerns are also present along the Missisquoi River, one problem areas is near the Dairy Center along 105 which has riprap along one bank.

Past Flood Damage

On July 14–16, 1997, flooding in northern Vermont caused severe local damage and resulted in a Presidential disaster declaration (FEMA-1184-DR-VT). The erosion and deposition were significant at numerous locations. Local officials and residents were concerned that the accumulation of sand, gravel, and cobbles in stream channels magnified the severe flooding. Currently, Vermont and Federal stream management policies restrict the removal of these materials. The flood of 1997 exacerbated an already serious river erosion problem. Historic land use changes, channel management practices, and floods had resulted in an extremely unstable river system.

Northern Vermont experienced record rainfalls during the spring of 2011 (DR1995 and DR4043). High precipitation combined with snowmelt resulted in prolonged saturated conditions and significantly elevated and/or perched water tables. The saturated ground and high water table conditions contributed to slope instability and landslides at several locations throughout northern Vermont.

There are many areas throughout Town where stream bank erosion is causing in – stream sedimentation. It is noted in the 2007 Geomorphic Assessment of Rock River and tributaries that stormwater runoff and sedimentation would be decreased following road maintenance practices such as stabilization of road surfaces (different gravel materials), improvement of roadside ditches (excavation, stone lining and/or seeding and mulching), alternative grading practices (turnouts, check-basins); re-orientation of culvert crossings; and protection of culvert headers. In agricultural settings, increased flows from drainage tiles, ditches and erosional gullies can be addressed through design and retrofitting of tile networks to provide for energy dissipation at tile outlets; gully stabilization; and consideration of crop rotation or alternative farming practices that reduce the need for drainage tiles.



Map 9.1. Floodplain and Fluvial Erosion Risk in Enosburgh

The Town of Enosburgh and Enosburg Falls Village have mapped fluvial erosion hazards (see Map 9.1). Fluvial erosion and landslide hazard maps could be used as a tool for communities to guide development away from areas that pose a high risk of erosion and landslides. Additionally, to mitigate the rates of erosion, riparian buffers of woody vegetation could be cultivated along stream banks. Selective armoring of the lower portions of stream banks would very likely be needed until a dense root system of vegetation develops along banks. Currently, several working farms within Town utilize buffer strips to mitigate erosion along streams. The town has incorporated defined buffers into their development regulations that protect a distance around rivers and ponds from development.

High Winds.

High winds can occur anytime and in any area of Enosburgh during the year as pressure gradients move through the area. The area has experienced a variety of high winds from storm systems that track from eastern New York and Ontario and across Lake Champlain. Enosburgh is far inland and is unlikely to receive a direct hit from a hurricane, however high winds and hail storms are typically an accompanying hazard. Localized high wind events have caused damage to sugarbushes in the area.

Power outages may occur resulting in significant loss of business as well as threatening public safety. Cleaning up debris following high wind events can be costly depending on the severity of the event. While there have been several tropical storms in the last decade, high winds have not led to significant reported damages in the community.

Structure Fires.

Structure fires can occur anywhere and be a threat whether it is in the village center or the rural countryside. Agriculture emergencies, such as barn fires, pose a unique risk for first responders. Animal behavior and barn fire logistics must be considered during response and many agricultural buildings store a variety of hazardous materials. Structures that are relatively close raise the risk for multiple structure fire.

- Since 2000 there have been three notable fires that have impacted public facilities:
- November 5, 2007 – A fire at the Historic Dairy Center complex on Route 105 destroyed the main office, two motel units, and damaged other facilities. The cause of the fire was not determined and damages were estimated to be $165,000.
- In 2005, a fire occurred in the Depatie and Abbott blocks of the Village Center. The fire completely destroyed two blocks of retail, business and housing; this area has since been rebuilt.
- In 2000, a fire destroyed the Dairy Center's banquet and dance hall. A wood stove caused the blaze. There was an estimated $70,000 in damages.

The impact of this type of incident would primarily be on the commercial sector with a smaller impact on housing. Newer public facilities, such as the Enosburg Public Safety building, are subject to fire safety building codes and are designed with heat/smoke detection systems.

Estimated loss due to fire damage on 5 structures annually using median home values is $412,500. This loss estimate does not include building contents nor losses to commercial or lodging sites. Older historic buildings, commercial sites and residences that lack fire alarms and sprinkler systems are at greater risk for damages. The Fire Department has noted the concern of adequate water capacity in the Village; this concern should be taken into consideration for planning and response purposes.

Winter Storm.

Winter storms bring snow, ice and freezing temperatures to the area and occur on annual basis. Winter storms affect all of Enosburgh and generally cause disruptions to public and private services. The primary impacts of a storm typically include the disruption to transportation networks, school closings and occasionally telecommunications and power outages. Vulnerable populations such as the elderly, those dependent on medical equipment and specialized health or physical care are at risk to winter storms. Also at risk are farms and associated structures and livestock.

Since 2000 there have been four major events:

- March 5th & 6th, 2001 - Enosburgh received 16" of snow. The storm began early Monday morning with a brief burst of snow then transitioned during the midday hours to intermittent light snow, sleet, freezing rain and rain. The storm developed into a nor'easter during the afternoon and continued through the evening. Damage estimates for cleanup are unknown.
- October 25, 2005 - A rare autumn Nor'easter struck Franklin County fed by the remnants of Hurricane Wilma. There were reported snowfall amounts in the County varied from 6 to 14 inches. Trees still laden with fall foliage were downed due to the weight of heavy, wet snow. There were many reports of snapped power lines from downed trees and branches. Many homes serviced by Vermont Electric Cooperative were without power for several days.
- December 1-5, 2010 - Severe winter storms during this period received a Presidential disaster declaration (DR 1951) to supplement state and local recovery efforts. FEMA's public assistance funds were made available to Franklin and other affected counties.
- December 20-26, 2013 - (DR-4163) A wide-spread low-pressure system that brought snow and freezing rain through Ontario, Quebec, and Northern New England. These areas experienced an ice storm that brought wide-spread power outages. Many Towns throughout Franklin County were affected by the ice storm. Vermont Electric Cooperative responded to over 60,000 customer outages during the week and estimated costs of restoring power at $7,400,000. Residents were without power for several days.

Severe winter storms are accompanied by strong winds creating blizzard conditions with blinding wind-driven snow, severe drifting, and dangerous wind chill. Strong winds with these intense storms and cold fronts can knock down trees, utility poles, and power lines. Extreme

cold often accompanies a severe winter storm or is left in its wake. Prolonged exposure to the cold can cause frostbite or hypothermia and become life-threatening. Infants and elderly people are most susceptible. Severe winter storms can bring heavy accumulations of ice which can down trees, electrical wires, telephone poles and lines, and communication towers. Communications and power can be disrupted for days while utility companies work to repair the extensive damage. Even small accumulations of ice may cause extreme hazards along roadways.

Risk from Community Infrastructure - Dams.
The Village of Enosburg Falls Electric Department owns and operates two hydroelectric dams on the Missisquoi River. The Village of Enosburg Falls Electric Department has conducted a safety analysis on the dam which considers downstream impacts to a dam breach or failure. Projected impacts are minimal according to the analysis. Any future dam safety analysis should be reviewed to ensure that the municipality implements any recommendations for local mitigation actions.

Major in-stream infrastructure like dams, even small dams on small streams, have significant impacts on fish and other aquatic life and can lead to stream instability by disrupting the natural downstream transport of sediment.

Past and Future Mitigation Actions.
The following sites were identified in the LHMP has problematic areas and have since been addressed:

- Culvert on Town Highway (TH)-1 (Perley Road), 0.5 mile North of the intersection with TH-11
- Bridge 48 on TH-2 (Boston Post Road)
- Bridge 9 on TH-7 (Longley Bridge Road)
- Bridge 49 on TH-1 (Nichols Road)
- Concrete bridge on TH-30 (Bogue Road)

The following sites have been identified as repetitive problems or maybe at risk in future events. These areas have been included in the LHMP update:

- Box culvert on unnamed tributary of Tyler Branch on TH-1 (Tyler Branch Road), 0.5 mi from VT 108
- Road reconstruction on TH19 (Tyler Branch Road) and TH18 (Duffy Hill Road)
- Bridge 45 on TH-42 (Sand Hill Road)
- Bridge 50 on TH-2 (VT 108) over the Missisquoi River
- Box culvert on TH22 (Nichols Road)

Goals, Policies and Recommendations.

GOALS:

- Encourage and foster an all hazards disaster resilient community.
- Reduce the loss of life and injuries that result from disasters.
- Reduce damages to public infrastructure resulting from all hazards events through hazard mitigation planning and project implementation.

POLICIES:

- Encourage flood emergency preparedness and response planning.
- Encourage the protection and restoration of floodplains and upland forested areas that attenuate and moderate flooding and fluvial erosion.
- Continue to implement the Local Hazard Mitigation Plan and Emergency Operations Plans in conjunction with the NRPC and others.
- Participate in the Franklin County Mutual Aid Agreement.
- Resiliency measures will be compatible with natural features, including floodplains, river corridors, land adjacent to streams, wetlands, and upland forests, historic resources; character of neighborhoods; and the capacity of the community to implement them.

Enhanced Energy Plan.
The intent of this section is to meet the municipal determination standards for enhanced energy planning enabled in 24 V.S.A. 4352. The purpose of enhanced energy planning is to further regional and state energy goals, including the goal of having 90% of energy used in Vermont come from renewable sources by 2050 (90 x 50 goal), and the following:

A. *Vermont's greenhouse gas reduction goals under 10 V.S.A. § 578(a);*
B. *Vermont's 25 by 25 goal for renewable energy under 10 V.S.A. § 580;*
C. *Vermont's building efficiency goals under 10 V.S.A. § 581;*
D. *State energy policy under 30 V.S.A. § 202a and the recommendations for regional and municipal energy 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 and 202b (State energy plans); and*
E. *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; and*

A positive determination of compliance with the requirements of enhanced energy planning, as provided by the Regional Planning Commission, will enable Enosburgh to achieve "substantial deference" instead of "due consideration" in Section 248 applications for energy generation facilities (ex. wind facilities, solar facilities, hydro facilities, etc.) under Criteria (b)(1)-Orderly Development. In short, this means that Enosburgh will have a greater "say" in Certificate of Public Good proceedings before the Vermont Public Service Board about where these facilities should or should not be located in the community.

To receive a positive determination of energy compliance, an enhanced energy plan must be duly adopted, regionally approved, and must contain the following information:

A. An analysis of current energy resources, needs, scarcities, costs, and problems.
B. Targets for future energy use and generation.
C. "Pathways," or implementation actions, to help the municipality achieve the established targets.
D. Mapping to help guide the conversation about the siting of renewables.

This chapter will include the required analysis, targets, and mapping. The "pathways," or actions, have been included in the implementation section of the municipal plan.

Energy Resources, Needs, Scarcities, Costs and Problems.
The following subsection reviews each energy sector of energy use (thermal, transportation, electricity) and generation in Enosburgh.

<u>Thermal Energy</u>
An estimate of current residential thermal energy demand in Enosburgh, based on data from the American Community Survey (ACS 2011-2015), is shown in Table 7.1. This data represents the

homes primary fuel source for home heating and does not account for backup or secondary home heating fuel sources. The data shows that 47.6% of households in Enosburgh depend on fuel oil for home heating as their primary fuel source. Fuel oil and wood sources are estimated to heat almost 75% of homes in Enosburgh. There is access to natural gas in Enosburg Falls, but only 127 households use this as their primary hearting source.

Table 10.1. Current Enosburgh Residential Thermal Energy Use

Fuel Source	Enosburgh Households (ACS 2011-2015)	Enosburgh % of Households	Enosburgh - Households Square Footage Heated	BTU (in Billions)
Natural Gas	127	10.8%	191,120	11
Propane	128	10.9%	202,176	12
Electricity	16	1.4%	28,352	2
Fuel Oil	557	47.6%	881,008	53
Coal	7	0.6%	8,400	1
Wood	316	27.0%	572,800	34
Solar	0	0.0%	0	0
Other	20	1.7%	31,744	2
No Fuel	0	0.0%	0	0
Total	1171	100.0%	1,915,600	115

Estimates for commercial and industrial thermal energy use are more difficult to calculate. An estimate of total commercial energy use (thermal and electricity) is provided in Table 7.2. Based on data from the Vermont Department of Labor (VT DOL) and the Vermont Department of Public Service (VT DPS). According to NRPC, it is assumed that the majority of this energy use, 65 billion BTU per year, is likely to be for thermal energy needs.

Table 10.2. Current Enosburgh Commercial Energy Use

	Commercial Establishments in Enosburgh (VT DOL)	Estimated Thermal Energy BTUs per Commercial Establishment/year (in Billions) (VT DPS)	Estimated Thermal Energy BTUs by Commercial Establishments in Enosburgh/year (in Billions)
Municipal Commercial Energy Use	89	0.725	65

Electricity Use

An estimate of current electricity use in Enosburgh is shown in Table 7.3. Enosburgh electricity use has increased from 26 million kWh in 2014 to about 26.7 million kWh in 2016. However, during this time average annual residential usage per household dropped from 8,704 kWh to

8,644 kWh between 2014 and 2016. Much of the increased growth in total kWh in Enosburgh between 2014 and 2016 has come from increased commercial and industrial users.

The Village of Enosburgh Falls Electric Department is the electric utility that serves the vast majority of the village and town. Vermont Electric Coop is the electricity utility serves very limited portions of Enosburgh near East Berkshire and Montgomery.

Table 10.3. Current Enosburgh Electricity Use

Use Sector	Current Electricity Use in Enosburgh - 2016 (Efficiency Vermont)
Residential (kWh)	13,195,444
Commercial and Industrial (kWh)	13,597,360
Total (kWh)	26,792,804

Table 10.4. Current Enosburgh Transportation Energy Use

Transportation Data	Enosburgh Data
Total # of Passenger Vehicles (ACS 2011-2015)	2,090
Average Miles per Vehicle (VTrans)	11,356
Total Miles Traveled	23,734,040
Realized MPG (2013 - VTrans 2015 Energy Profile)	18.6
Total Gallons Use per Year	1,276,024
Transportation BTUs (Billion)	154
Average Cost per Gallon of Gasoline in 2016 (NRPC)	2.31
Gasoline Cost per Year	2,947,615

Transportation

Table 7.4 contains an estimate of transportation energy use in Enosburgh. It's estimated that Enosburgh residents drive approximately 23.7 million miles per year and spend about $2.9 million on transportation fuel expenses a year. This calculation does not include expense for commercially owned and operated vehicles.

As of January 2016, data from the Vermont Department of Motor Vehicles notes that there are between 1 and 4 electric vehicles within the Enosburgh zip code (which includes parts of Berkshire, Sheldon, and Bakersfield).

Generation

There is currently 2.29 MW of electricity generation capacity from renewable generation facilities in Enosburgh. This capacity results in approximately 7,372 MWh of electricity generation per year. This is roughly equal to the annual electricity use of about 1,100 households in Vermont based on information available from the U.S. Energy Information Administration (558 kWh per VT household per month).

Table 7.5 organizes information about existing generation in Enosburgh by type of facility. The Existing Generation map at the end of the chapter shows the location of all electricity generators in Enosburgh with a capacity greater than 15 kW.

Enosburg Falls, along with the western and northern parts of Enosburgh along VT Route 105 and VT Route 118, generally have good access to electricity transmission lines and three-phase

distribution lines. These types of lines are used to transmit large quantities of electricity and are needed to serve large industrial users and commercial centers. Access to this type of infrastructure may make development of renewable energy facilities easier and more cost-effective in than in other surrounding communities with less existing grid infrastructure. The Transmission Infrastructure Map at the end of the chapter shows the electricity transmission and three-phase distribution infrastructure in Enosburgh. Access to renewable generation resources, such as solar and wind, will be addressed below in the mapping section.

Table 10.5. Existing Renewable Generation in Enosburgh

Generation Type	MW	MWh
Solar	0.29	355.66
Wind	0.00	8.58
Hydro	2.00	7,008.00
Biomass	0.00	0.00
Other	0.00	0.00
Total Existing Generation	2.29	7,372.24

Targets for Energy Use.

Northwest Regional Planning Commission worked with the Vermont Energy Investment Corporation (VEIC) and the Vermont Department of Public Service in 2016 to develop regional targets for future energy use and generation to meet the State of Vermont's 90 x 50 goal. The targets represent only one scenario that would meet this goal. There may be many different ways that would also enable Vermont to achieve the 90 x 50 goal. For more information about the regional targets, please see the Northwest Regional Energy Plan (www.nrpcvt.com).

Tables 7.6, 7.7 and 7.8 show the targets for future energy use for Enosburgh by sector (totals are cumulative). These municipal targets are based on regional targets that have been disaggregated.

The thermal target for Enosburgh in 2050 is to have 85% of structures be heated by renewable sources. Much of this transition is likely to come in the form of electric heat pumps as the primary heating source for single family homes as the technology becomes more readily available and affordable. The target also relies on wood heating being a continued source of residential heating. There are also high targets for the weatherization of residential households and commercial structures (78% and 73% respectively in 2050).

Table 10.6. Thermal Targets

Thermal Targets	2025	2035	2050
Percent of Total Heating Energy From Renewable Sources - Heating (BTUs)	44.3%	57.3%	85.0%
New Efficient Wood Heat Systems (in units)	6	16	59
New Heat Pumps (in units)	122	293	578
Percentage of municipal households to be weatherized	5%	16%	78%
Percentage of commercial establishments to be weatherized	25%	49%	73%

The transportation energy targets for Enosburgh are similarly ambitious. By 2050, almost 91.7% of transportation energy will need to come from renewable sources. This will primarily be done through conversion to electric vehicles from fossil fuel vehicles for light-duty, passenger

vehicles. However, it will also mean conversion of heavy-duty vehicles from diesel to biodiesel sources. The biodiesel technology and infrastructure will certainly need to advance and evolve in order to meet this target.

Table 10.7. Transportation Targets

Transportation Targets	2025	2035	2050
Percent of Total Transportation Energy from Renewable Sources - Transportation (BTUs)	12.4%	35.7%	91.7%
Electric Vehicles	183	1369	3258
Biodiesel Vehicles	493	984	1906

Targets for electricity use are more complex to interpret. Electricity use is targeted to double by 2050 (Table 7.8). This will likely be driven by conversions to electric heat pumps and electric vehicles. These consumer changes will cause electricity use to grow. At the same time, total energy use (energy, not electricity) will become more efficient. This is because electric cars and electric heating sources are more efficient than using other energy sources, such as fossil fuels. So while the doubling of electricity use is the target, then intent is to continue to work towards electricity conservation while becoming more reliant on electricity for transportation and heating. To truly assess whether or not Enosburgh has achieved this target, it will need to assess both parts of the targets, conservation and conversion, in the future.

Table 10.8. Electricity Targets

Electricity Targets	2025	2035	2050
Increased Efficiency and Conservation (BTUs)	25.2%	48.3%	100.7%

Targets for Energy Generation.

Table 7.9 shows the electricity generation targets for Enosburgh in 2025, 2035, and 2050. All new wind, solar, hydro, and biomass electricity generation sites will further progress towards achieving the generation targets (in MWh). Given the difficulty of developing additional hydro generation, and the constraints upon wind development, it is likely that solar generation will need to be a substantial component of meeting these generation targets. Meeting the generation targets will take considerable effort over the next 30 to 35 years. The 2050 generation target (21,783.1 MWh) is about 3 times the current generation capacity (7,372.24 MWh) within the Town of Enosburgh.

Table 10.9. Generation Targets

Renewable Generation Targets	2025	2035	2050
Total Renewable Generation Target (in MWh)	7,188.4	14,376.8	21,783.1

Enosburgh has sufficient land to meet the above generation targets based on mapping completed by NRPC. Based on mapping and calculations completed by NRPC, Enosburgh has access to the generation capacity outlined in Table 7.10. This generation capacity was calculated using the "base" layers for solar and wind. For an explanation of what constitutes a "base" layer, please see the mapping subsection below.

Table 10.10. Renewable Generation Potential

Resource	MW	MWh
Rooftop Solar	2	1,982
Ground-mounted Solar	461	565,299
Wind	176	539,831
Hydro	0.004	14
Biomass and Methane	0	0
Other	0	0
Total Renewable Generation Potential	**639**	**1,107,125**

Enosburgh supports NRPC's position regarding "commercial" and "industrial" wind facilities. The NRPC Regional Plan finds that the construction of new "industrial" or "commercial" wind facilities within the region does not conform to the Regional Plan (NRPC considers any wind facility with a tower height (excluding blades) in excess of 100 feet tall to be considered an "industrial" or "commercial" wind facility).

Energy potential from biomass and methane sources is not estimated. This is due to a variety of factors including insufficient information on which to create estimates. Enosburgh encourages the use of these sources for electricity and thermal generation, especially on farms.

Figure 10.2. Ground Mounted Solar Potential

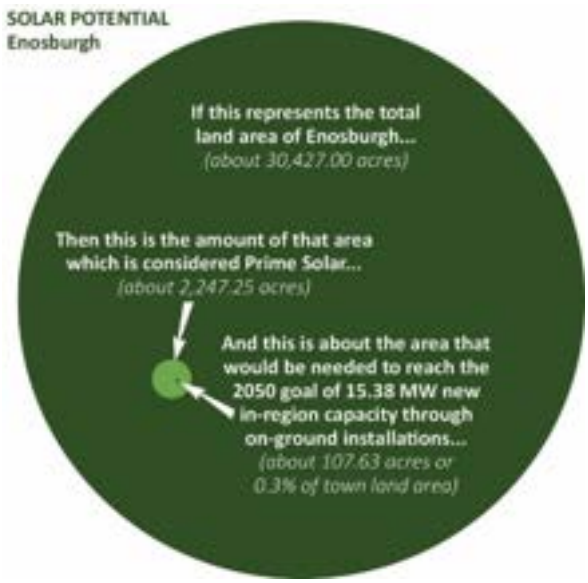


Figure 10.1. Rooftop Solar Potential

Rooftop solar was estimated by using methods suggested by the Vermont Department of Public Service. The methodology estimates that 25% of residential and commercial structures in Enosburgh could be suitable for rooftop solar generation. This results in 293 residential structures and 22 commercial structures in Enosburgh. It is then estimated that the average residential rooftop system is 4 kW in size and the average commercial rooftop system is 20 kW in size. The resulting estimated generation capacity is 1.62 MW of solar generation.

Mapping Energy Resources and Constraints.
Enosburgh has incorporated maps provided to them by NRPC in Appendix D. These maps show data as required by the Department of Public Service Determination Standards, including access

to energy resources and constraints to renewable development, and are a required element of enhanced energy planning. All maps may be found at the end of this section.

The intent of the maps is to generally show those areas that may be good locations, or may be inappropriate locations, for future renewable generation facilities. However, it is important to note that the maps are a planning tool and do not precisely indicate locations where siting a facility is necessarily acceptable. When a generation facility is proposed, it is the applicant's responsibility to verity the presence of all constraints on site as a part of the application.

Mapping Methodology.
Spatial data showing the location of energy resources formed the basis of the maps developed by NRPC. This is the data that shows where there is solar, wind, hydro, and biomass "potential."

"Known" and "possible" constraints were subsequently identified on the maps. Known constraints are conservation resources that shall be protected from all future development of renewable generation facilities. Possible constraints are conservation resources that shall be protected, to some extent, from the development of renewable generation facilities. The presence of possible constraints on land does not necessarily impede the siting of renewable generation facilities on a site. Siting in these locations could occur if impacts to the affected possible constraints are mitigated, preferably on-site.

A full list of known and possible constraints included on the maps is located in Table 7.11. The known constraints and possible constraints used to create the maps include constraints that are required per the State Determination Standards from the Department of Public Service and regional constraints that were selected by NRPC. The Conservation Districts for both Enosburgh and Enosburg Falls were included as regional known constraints.

Solar and Wind.
The solar and wind maps show both "base" and "prime" areas. Base areas are areas with generation potential, yet may contain possible constraints. Prime areas are areas that have generation potential that do not contain known or possible constraints. Areas that do not contain generation potential, and areas that contain a known constraint, are shown as white space on the map.

The solar map indicates a general concentration of base and prime solar areas around the northern portion of VT Route 105, and in the vicinity of Enosburgh Center. Enosburgh has identified the following preferred locations for solar generation facilities: rooftops, parking lots, and landfills. Brownfield sites located outside of the village are also considered preferred locations.

There generally isn't much land available in Enosburgh that has base and prime wind resources. These areas are generally concentrated west of Enosburgh Center and on the lower western slope of Enosburgh Mountain.

Hydro and Biomass.
The biomass map is somewhat similar to the solar and wind maps. The biomass map also displays "base" and "prime" areas. However, these categories are not necessarily indicative of

generation. They instead indicate areas of contiguous forest that may be used for the harvesting of woody biomass for use in either thermal or electric generation.

The hydro map is unique from the other types of generation maps. It shows existing dam sites used for electricity generation. It also shows existing dam sites that are not used for electricity generation, but could be retrofitted to provide generation capacity. Data about these dams comes from a study commissioned by the Vermont Agency of Natural Resources. The hydro map also shows some known and possible constraints that could impact the redevelopment of some dam sites.

Enosburgh has one existing dam site. The dam, owned by the Village of Enosburg Falls, is located on the Missisquoi River and currently generates electricity for the Village Electric Department.

Conclusion.

Achieving the 90 x 50 goal, and the other energy goals in state statute, will be difficult. Enosburgh is committed to playing its part in working towards accomplishing these goals and in creating a more sustainable, less costly, and more secure energy future.

Goals, Policies and Recommendations.

GOALS:

- Plan for increased electric demand with the support of Efficiency Vermont.
- Reduce annual fuel needs and fuel costs for heating structures, to foster the transition from non-renewable fuel sources to renewable fuel sources, and to maximize the weatherization of residential households and commercial establishments.
- Hold vehicle miles traveled per capita to 2011 levels through reducing the amount of single occupancy vehicle (SOV) commute trips, increasing the amount of pedestrian and bicycle commute trips, and increasing public transit ridership.
- Focus growth within and adjacent to the village.

POLICIES:

- Enosburgh supports energy conservation efforts and the efficient use of energy across all sectors.
- Enosburgh supports the reduction of transportation energy demand, reduction of single-occupancy vehicle use, and the transition to renewable and lower-emission energy sources for transportation.
- Enosburgh supports patterns and densities of concentrated development that result in the conservation of energy. This includes support of public transit connections from Enosburgh to other parts of the region and considering access to public transit when reviewing Act 250 applications.
- Enosburgh supports the development and siting of renewable energy resources in the Town that are in conformance with the goals, strategies, and mapping outlined in this plan.

Development of generation in identified preferred locations shall be favored over the development of other sites.

- Enosburgh supports the conversion of fossil fuel heating to advanced wood heating systems or electric heat pumps.
- Support local farms and the local food system.

Chapter 11: Economy

Introduction.

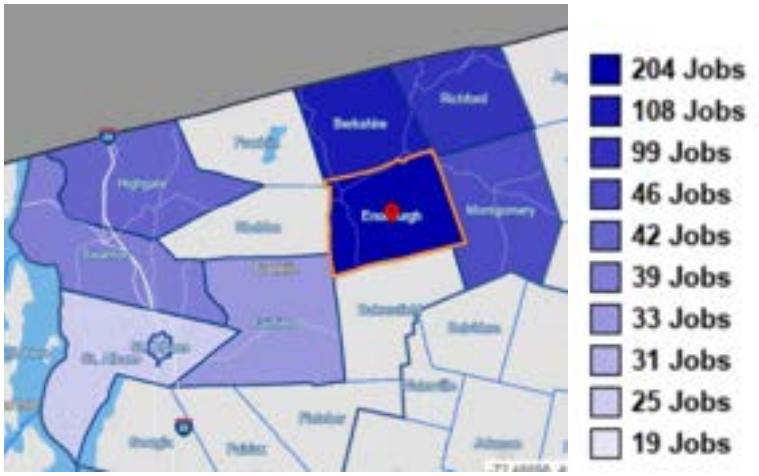
Enosburgh's geography as a central location in Franklin County and its distance from larger towns and cities has led to its historic and current role as a regional center. The village is characterized by a traditional Main Street with a rich historic legacy consisting of a variety of brick, block-style buildings intermixed with historic New England architectural styles. Retail is the dominant sector of the local economy, but agriculture remains important.

Main Street Retail Establishments in Enosburg Falls.

Employment, Business and Industry.

Workers coming to Enosburgh for employment largely pull from Franklin County. Figure 11.1 depicts the communities where the majority (66%) of the workers employed in Enosburgh live. The distribution of workplaces for Enosburgh residents is far more diffuse geographically. Notably, 19 percent of Enosburgh's workforce commutes to the Burlington area, while 17 percent commutes to St. Albans.

Figure 11.1. Enosburgh Commuter Shed



Source: U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics, 2011.

Enosburgh has a variety of businesses that serve both local needs and the needs of its surrounding areas. A complete listing of the sectors and the number of persons employed by each can be found in the Figure 2.6. According to a 2019 market assessment completed Doug Kennedy Advisors, there are approximately 98 businesses in the village. Retail accounts for 27 percent of all business establishments and 23 percent of total employment.

One of the bigger employers in Enosburgh is Franklin Foods, the cheese processing plant which employs over one hundred persons. Two of the service-orientated businesses that contribute significantly to the local economy are in the health care field and transportation. In the health care services sector are the

Riverbend and Brownway nursing and boarding care facilities. There is also the Northern Tier Center for Health (NOTCH) health center, which houses several health care professionals and practitioners, as well as Northwestern Pediatrics, Cold Hollow Practice and Franklin County Home Health Agency.

The transportation sector has a considerable impact on the local economy. There are four companies in Enosburgh which together provide nearly two-hundred full-time and part-time positions. Most of these companies are involved in the hauling of bulk milk. Some provide miscellaneous trucking services and one provides school busing for the districts in eastern and central Franklin County. While not all the jobs are based in Enosburgh, the fact that they are part of operations headquartered in Enosburgh is significant. Of special note is the close relationship between the transportation sector and the local dairy sector. The most prominent businesses in this sector are McDermott's Milk Transport, Richard I. Green Trucking, Vaillancourt's, and Wrightholm.

Above: The Gervais Farm (Photo Credit: Janice Geraw).

Other large employers in Enosburgh include the Enosburgh School District, Hannaford's Supermarket, the Enosburgh Municipal Electric Co, and dairy farming.

Agriculture.

The economy of the Northwest Region, particularly with regard to land use, remains predominantly rural and resource-based. According to the 2017 Agricultural Census, the number of farms in Franklin County declined, but only by 7 farms or less than 1%. The amount of land in farms increased by a small percent with an increase in average farm size as well.

Agriculture is extremely important to the regional and local economy. The agricultural industry exports goods from the Region and imports new dollars into the local and regional economy. Local farm operators tend to rely on other local businesses for their needs. By keeping things local, every new dollar brought into the area increases in value as it circulates. Agricultural related companies have located in the Village to capitalize on proximity to the region's farms; these companies include McDermott Trucking, Vaillancourt Trucking, and Franklin Foods Inc.

The Town of Enosburgh is known as the "Dairy Center of the World." Its importance as one of the most agricultural communities in the State of Vermont has only slightly diminished. Although several of the smaller farms are no longer being operated, much of the land is still in agricultural use, generally by the larger farms. There are still many working dairy farms in the Town. In addition, there are also beef, goat, horse and vegetable farms as well as several logging and maple sugar operations of varying size. During the summer months, there is a farmer's market in Lincoln Park where local farmers can sell their products.

Above: Old fashioned power with a little modern machinery.

The strong agricultural base that is present in Enosburgh easily lends itself to the current trends in agritourism combining agriculture and tourism; this not only results in additional support for that farm's business but also greater appreciation of the land and knowledge of local agriculture. Agritourism along with value-added products could provide local businesses with a source to diversify their farming venture and maintain a sustainable business.

Forestry.

Enosburgh is in close proximity to several commercial mills. Within a sixty-mile radius, within the United States, there are 5 hardwood mills, 4 softwood mills, 1 concentration yard and several portable saw mills. On average, 70% of the Vermont forest harvest comes from the northern part of the state, due to better access to markets. Maple syrup production is high in the region and has increased significantly over the past decade in Enosburgh and neighboring communities. The economic benefits that the forest industry provides to the state, particularly in the rural areas, are greater than any single industry or segment of the economy. The managed use of our forests will continue to provide jobs in logging and primary wood processing, and wood products manufacturing. The goal should be to capture as much value from locally grown timber as possible in the local economy.

Tourism.

Tourism is an important component of Vermont's economy and generates revenue from retail sales, accommodations, restaurants, and supports jobs in tourism-related businesses. In rural areas, the traditional landscape pattern of open fields surrounded by wooded hedgerows with a backdrop of wooded hillsides has the potential to attract visitors to Enosburgh.

The Village Center contains well preserved historic structures and features, as well as local businesses selling services and "Vermont" products. Investment in pedestrian infrastructure has made it possible for tourists to leave their cars and enjoy the Village safely on foot. In order to encourage this activity, marketing materials describing self-guided "walking tours" of the Village could be developed in collaboration with local businesses, the Historical Society, and economic development interests.

The promotion of the natural environment and outdoor recreation opportunities serves as both a draw to the resource and brings awareness to their importance. Fishing and paddling opportunities can be found along the Missisquoi River and Tyler Branch. Paddlers also access the Northern Forest Canoe Trail, which passes through the Village along the Missisquoi River linking 740 miles of waterway across New York and northern New England. Walkers, bikers, cross country skiers and snowmobilers can take advantage of the Missisquoi Valley Rail Trail; a 26.4mile recreation trail that crosses the countryside and funnels travelers into the village. Trails such as this provide significant environmental, transportation, health and economic benefits.

The Vital Village Project (Figure 11.2) provides specific recommendations for attracting more tourists, particularly Canadian tourism opportunities. Increasing the wayfinding and marketing around the MVRT was also a primary focus of the Vital Village project.

Economic Development.

In response to a struggling local economy and Main Street, the Village Trustees and the Enosburg Falls Economic Development Commission hired Mad River Research to complete a Downtown Business Plan in 2003. The purpose of this plan was to provide the information and analysis necessary to strengthen and expand the economy of downtown Enosburg Falls. The same year, the Vermont Council on Rural Development completed a Community Visit and Action Plan touching on many of the same issues. While some progress has been made in implementing the recommendations of these plans since 2003, the community has struggled to make progress until recently with a resurgence of activity with the Enosburg Business Association, Enosburgh Economic Development Corporation and the volunteer coordinated revitalization effort the Enosburgh Initiative. The Village and Town joined forces in 2018-2019 to complete the Vital Village Master Plan, which targets Main Street revitalization, outdoor recreation and improved pedestrian and bicycling connections (Figure 11.2).

Despite its challenges, the Village of Enosburg Falls has seen many business improvements in recent years; it is experiencing a strong business base, improvements to storefronts, and a connected sidewalk system which aid in encouraging new business and growth to the area. The Enosburgh Business Association, made up of local business owners, assists with keeping the business community vibrant with community events and promotions. The Cold Hollow Career Center is also vital resource as it aids in training the future workforce to bring those trained workers into the economy.

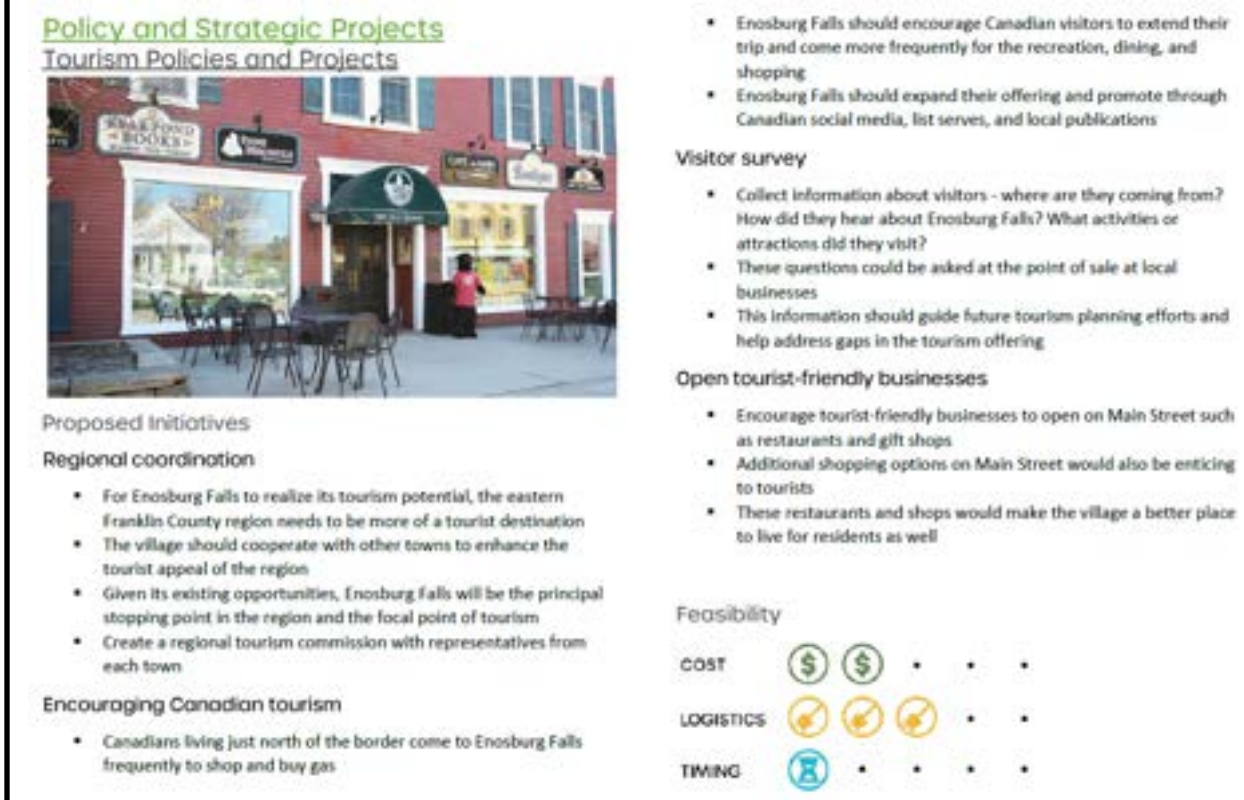
Figure 11.2. Vital Village Project

Vital Village Project.

In 2018, the Village and Town joined forces to complete a village master plan, funded by a State of Vermont Better Connections Grant. Known as the Vital Village Project, the master plan was completed in 2019 with an overarching focus on physical improvements and programmatic/policy initiatives to improve economic development in the Village Center. The plan can be accessed digitally from this website: www.enosburgvitalvillage.org. The plan outlines five (5) top priorities for implementation, which include:

- Streetscape and wayfinding improvements on Main Street and Depot Street,
- Improvements to the Missisquoi Valley Rail Trail intersection,
- Developing a community wide brand and
- Promoting Canadian Tourism.

Many recommendations to further these priorities have been incorporated into this plan. Provided here are the policies and projects recommended by the plan to promote tourism.



Competition for industry is high, and Enosburgh has not experienced any improvement in its manufacturing economy in recent years. Recently, the Enosburg Economic Industrial Corporation (EFEDC) was reconvened to work towards attracting development to the Industrial Park after faltering for several years. These lots have access to water and sewer lines and are

zoned for industrial development; the Town is seeking to permit mixed used on these lots by amending the applicable permits.

Goals, Policies and Recommendations.

GOALS

- Promote a balanced, diverse economic base, with a focus on locally owned enterprises.
- Support economic growth that complements existing firms and the vitality of the downtown business district.

POLICIES

- Enhance and protect the economic vitality of the Village and population centers as important community assets by promoting the reuse of existing buildings and recognizing the impact of the built aesthetic.
- Encourage commercial and industrial development within the Central Business District and Industrial Park.
- When planning for commercial and industrial development, encourage such development to serve the public good in terms of employment, revenue, environmental quality, health and safety, and services.
- Promote a diversified and stable economy by encouraging compatible industrial and commercial development, supporting the expansion of existing industry and small business, and encouraging businesses that utilize the skills of the local labor force.
- Support agriculture and forestry related businesses, and protect productive agricultural and forestry lands from conversion to incompatible land uses.
- Recognize and encourage the positive economic impact from recreational activities and local events such as art exhibits, musical events, craft fairs and farmer's markets.
- Increase availability and access to groceries, farmers' markets, and community gardens to expand healthy and local options.
- Support home-based occupations.

Chapter 12: Land Use

The use of land, both historically and currently, defines the physical make-up of the municipality, providing not only a sense of place, but an insight to how the community functions economically, physically and socially. As Vermont's economy expands beyond natural resource-based businesses towards technology-based businesses, the factors that determine the lands economic value have changed. Previously it was determined by the productivity of a piece of land for farming or timber, while today features such as access to major transportation networks; infrastructure such as telecommunications, water and sewage systems; and proximity to qualified labor markets all help in determining the value of land for economic development.

Technological advances also have an impact on land use. Current technology allows projects to be completed much more rapidly today than in the early years. The construction of roads and the use of transportation technology allow people and materials to move rapidly and reliably over the landscape. Telecommunication and technological advances further erase geographical limitations. Changes in State sewage regulations and the design of innovative sewage management systems also help in reducing the number of constraints on land development. Previously, land that was thought to have too many constraints can now be more easily developed.

Land use planning involves the consideration of the many possible types of land uses and the goals of the land users. The impacts of growth, development, and environmental change on the land should be taken into consideration before any changes are made to the land. These changes will have a lasting effect on the community.

Current Land Use.

Enosburgh covers a total of 30,925.29 acres or approximately forty-eight square miles. The majority of land in town is comprised of forestland and agriculture. Deciduous, coniferous, and mixed forest account for 64 percent of the total land area with agriculture comprising 30 percent (Landsat 2002, Map 12.1).

Much of Franklin County's eastern section, including the Town of Enosburgh, is wooded, hilly, and well suited for forestry. Forested areas are beneficial for both the economic livelihood of the rural communities and for the natural habitat they provide. "Non-productive" uses of land, such as protection of wildlife, provide substantial benefits to society, ranging from the economic returns arising from tourism to the benefits of water purification and flood control.

Enosburgh can best be described as a diversely agricultural community. Similar to the trend across the state, Enosburgh has seen a decrease in the number of farms over the last ten years. In most cases these farms are still managed as agricultural resources but are owned and managed by a fewer number of owners. The Vermont Land Trust has worked with several landowners to conserve existing farmland by the purchase of development rights to ensure that this land will remain perpetually open; currently there are 3,339 acres conserved in Enosburgh. The purchase of conservation easements has provided farmers with one tool to keep their farms permanently

managed for forestry and agriculture. Other agricultural uses include maple sugaring operations and commercial greenhouses.

Enosburgh has maintained the character of the traditional village center, with a Main Street consisting of multi-story brick blocks at its heart and surrounded by residential and additional commercial areas. Most neighborhoods are characterized by an amiable mixture of land uses and there is still a sizable portion of land within the Village which is open and in use for agriculture or woodland. The Central Business District has experienced a period of renewal with the 2007 redevelopment of the Depatie/Abbott Block which provided residential apartments and additional retail space in the village center.

In recent years, commercial development has increased in the commercial districts in the north and west Village on Route 105. It is important to implement strict design standards to maintain pedestrian accessibility within the Commercial Districts and from the commercial districts to the Central Business District.

The high school, elementary school, and the vocational center are all located within the High Density Residential District. The Planning Commission should work with the School Board to ensure that sufficient land is secured for educational facilities and future growth, either in the neighborhood of existing facilities, or at a new location. Particular attention should be given to maintaining the schools' role as central to the community and to recreational spaces that can be accessed by residents of all ages.

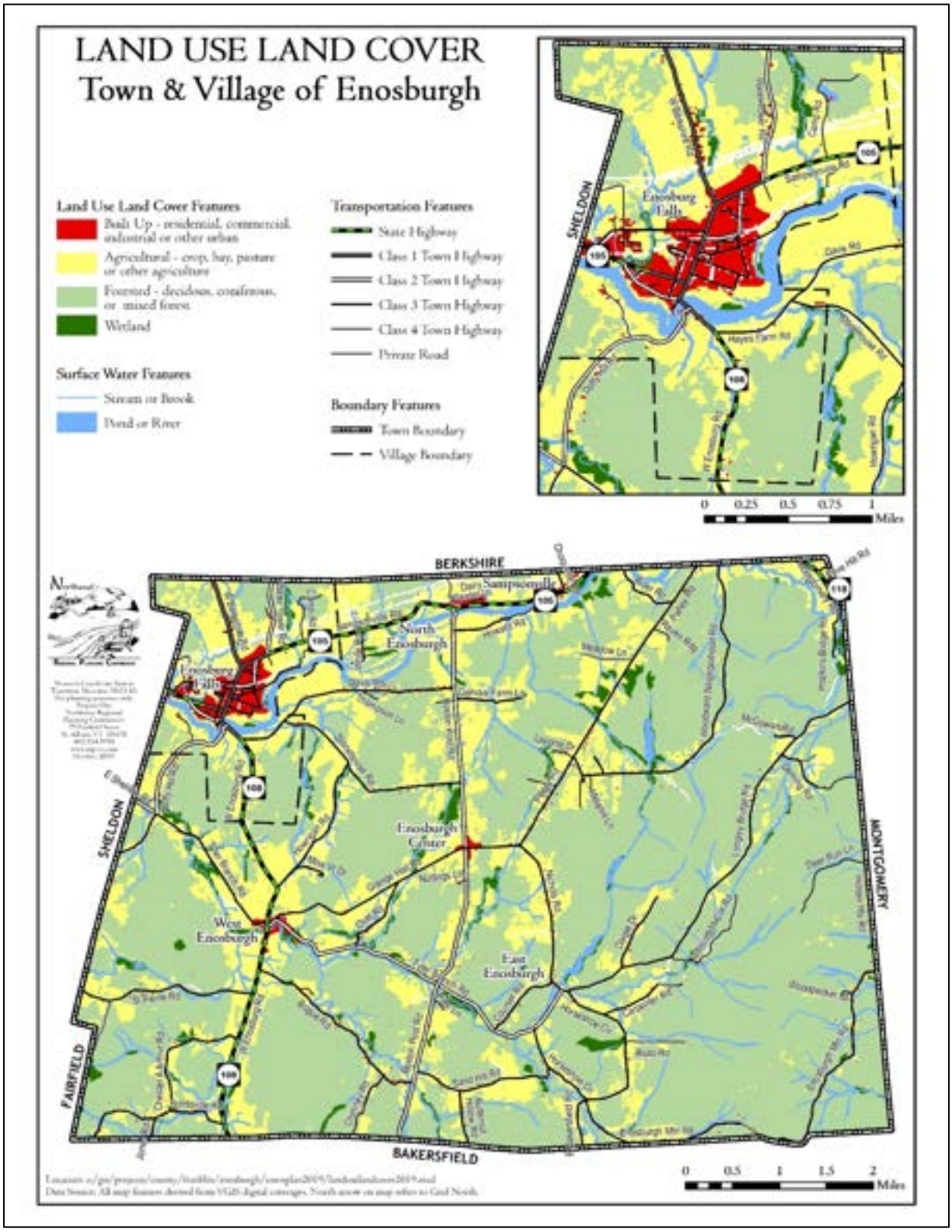
Village Designation.

The Village of Enosburg Falls Village Center was designated on February 2006 as a way to support the revitalization of the existing traditional village center. The Village Center is composed of an interconnected core of residential, civic, religious, and commercial buildings arranged along Main Street and the adjacent areas.

Figure 12.1. The Area Designated as the Village Center

This designation supports the goals of the community by gaining access to several benefits such as receiving priority consideration for state grants, access to tax credits, priority consideration for state building and general services when leasing or constructing buildings, and allows for the creation of a special assessment district within the Village Center to use funds for operating costs. The Village Center also aligns with the statewide planning goals

of compact development and maintaining the historic settlement pattern as stated in 24 V.S.A. § 4302.



Map 12.1. Land Use and Land Cover Present in Enosburgh

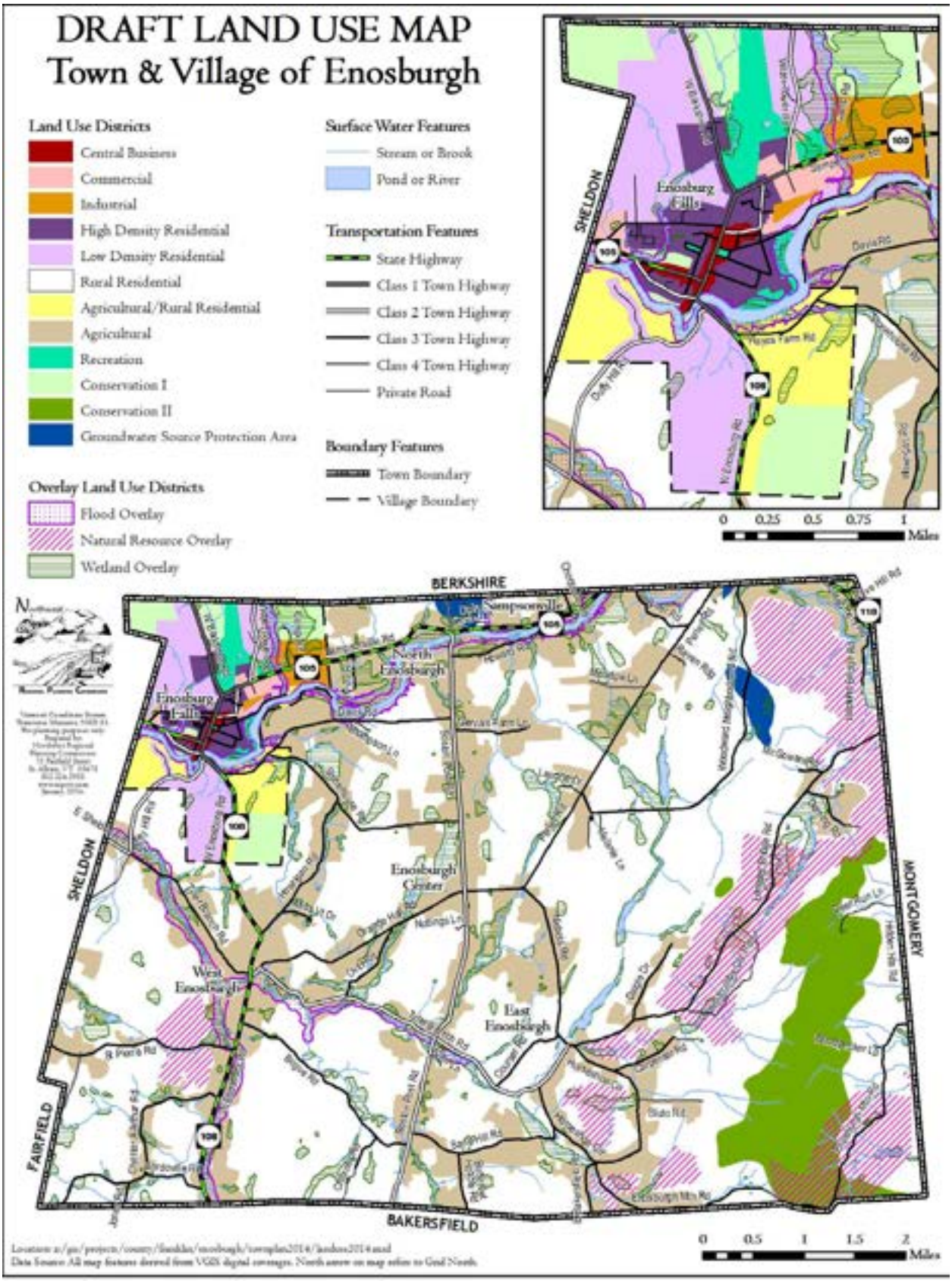
Constraints to Development.
Areas with steep slopes (20% or greater), shallow soils, high water table, or within the flood plain are poorly suited for development. These site conditions may entail high maintenance costs, and pose a burden to municipal taxpayers as well as hazards to public health and safety. Development in these areas may also compromise the quality and quantity of ground and surface waters and other natural resources, and therefore should be restricted.

Proposed Land Use Districts.
A trip through Enosburgh offers a picturesque display of landscape features – small hamlets, the village of Enosburg Falls, rolling forested hills, farms fields with scattered homes, wetlands, and rivers. Together these landscape elements make Enosburgh what it is today. Some of these features were created by limitations of the environment to support development while others are historical remnants from the days of water powered mills.

The development of the Proposed Land Use Districts are based on existing land use patterns, traffic patterns, the intensity of proposed uses, physical constraints of the land, the resident's vision for the community, and several long-range planning goals and objectives. The Village of Enosburg Falls is expected to continue to be the primary residential, commercial, and industrial center for the surrounding town. The village is expected to provide the services needed by the businesses and residents in order to maintain the village densities.

The vision for the future of Enosburgh is to preserve the rural and agricultural character and protect the natural assets. Future development should aim to conserve agricultural soils, water quality, forests, and wildlife while allowing for additional residential and commercial growth. The aim of this plan is not to stop growth but rather to guide development in the future away from some areas and towards others.

To further the goals, policies, and recommendations set forth in this Plan, the following twelve (12) land use districts and three (3) overlay districts describe the current zoning districts in Enosburgh, shown on Map 12.2.



Map 12.2. Draft Land Use Districts in Enosburgh

CENTRAL BUSINESS DISTRICT.
The purpose of the Central Business District is to provide a concentrated area to serve the business, service, and social needs for the community as well as the region. The historical character of the district focuses upon pedestrian access to a mixture of retail sales, personal services, professional services, business offices, and high density residences tightly spaced with minimal setback from the street. Residential uses add interest and vitality to the area and accommodate those who desire high-density housing.

Pedestrian travel will be encouraged by well-maintained and landscaped walkways that connect the District to other commercial and residential areas of the Village. Public open space is provided for rest and recreation, and to increase the district's scenic quality. Public events such as art exhibits, musical events, craft fairs, and farmers markets are encouraged.

COMMERCIAL.
The purpose of the Commercial Districts is to provide areas with public water and sewer for larger-scale, land-intensive retail, commercial, and high density residential development that may not be suited to location in the Central Business District. These areas are intended to complement the Central Business District, and efforts will be made to connect them by attractive pedestrian paths, internal roadways, and landscaping.

The Commercial Districts are located at entrances to the Village, and they must be designed to create a positive first impression for visitors. Master planning will be encouraged in order to promote efficient and economic connection with existing services and facilities. Development within the District will be reviewed to ensure attractiveness of sight design and signs. Strip development will be controlled by limiting the number of curb cuts and requiring consolidated access points onto RTE 105.

INDUSTRIAL.
The purpose of this District is to provide an area with good highway access and municipal water and sewerage for manufacturing, warehousing, research and development, and their accessory uses. Since these are intensive uses with potential impacts and hazards to public health and welfare, all uses within the District shall receive conditional use review by the Development Review Board. Master planning will be encouraged in order to promote efficient and economic connection with existing services and facilities.

HIGH-DENSITY RESIDENTIAL DISTRICT.
The purpose of this District is to maintain the privacy, and property values in established traditional residential neighborhoods. Industrial and most commercial uses should not be allowed in this district to maintain a safe, residential character. This area is served by public services and facilities. Efforts to retain and improve the quality and vitality of older neighborhoods through restoration of deteriorating buildings should be encouraged. Residential development in this District should provide for a variety of dwelling types and for the needs of people of all income levels and ages.

LOW DENSITY RESIDENTIAL.
The purpose of this District is to provide opportunities for residential development at densities appropriate to the physical capability of the land outside of the more densely settled village area. These areas have public water supplies and may or may not have municipal sewerage. A density bonus will be offered to encourage clustering of dwellings in this district in order to conserve open land for recreation, aesthetics, agriculture, and forestry.

RURAL RESIDENTIAL.
The purpose of this District is to protect those areas which are used for agriculture but to allow for uses other than agriculture and forestry, including residential and compatible uses, at a density these areas can support in accordance with the municipal plan. Of top concern is the protection of prime agricultural soils. Historically, rural development was considered "scattered" but today the goal is for "clustered" growth. In this way, large contiguous open space is protected for farming and pockets of housing will occur in less productive areas.

AGRICULTURAL/RURAL RESIDENTIAL DISTRICT.
The purpose of this District is to maintain the predominantly agricultural character of the area with its scattered residences. Since much of this district is prime farmland, new residential and other nonfarm development will be reviewed to ensure minimal interference with continuing agricultural use. Planned unit developments, the clustering of houses and developments that do not remove land from production will be encouraged by a density bonus.

What is a Land Fragmentation?
Fragmentation is the separation of parcels of land into ever-smaller pieces, with like uses interspersed with unlike uses.

A forest cut into two by a power line or two farms separated by a townhouse development are examples.

AGRICULTURAL DISTRICT.
The purpose of this District is to protect the long term viability of productive farmland in the Town for agriculture use by 1) protecting prime agriculture soils as mapped by the U.S. Natural Resources Conservation Service (NRCS), 2) minimizing the fragmentation of productive farmland, and 3) mitigate the adverse effects of development on farmland operations. Other uses may be conditionally allowed, including residential use at a low density.

RECREATION DISTRICT.
The purpose of this District is to reserve areas for current and future outdoor recreational facilities. The District includes areas within the Village that are presently being used for private and/or public recreation as well as additional areas to be reserved for the development of outdoor recreation facilities. It is intended that no development other than outdoor recreational use occur in this District.

CONSERVATION DISTRICT I.
The purpose of this District is to protect the scenic and natural resource value of lands which lack direct access to public roads, are important for wildlife and wildlife habitat, and which are poorly suited for development. Location, topography, and soil limitations make lands in this district unsuitable for intensive development. Included are areas of steep slope and wetlands.

No public water or sewer facilities are planned for these areas. Only low-density residential development, limited outdoor uses, conservation uses, agriculture, and forestry compatible with the district purposes will be allowed.

CONSERVATION DISTRICT II.
This district is defined as areas that, by reason of its soil and topography, have limited development potential or are more susceptible to environmental degradation. Steep slopes (over 15%), wetlands, deer yards, and high elevations (over 1,500 feet elevation) are all areas in the conservation district. The purpose of this district is to protect the pristine and sensitive areas of the Town, that are primarily used for forestry and outdoor recreation, from the adverse effects of development and growth but to allow for uses other than forestry, including camps and other compatible recreation uses, at a density these areas can support.

GROUNDWATER SOURCE PROTECTION AREA.
This district serves to protect the source of water for the East Berkshire Water COOP, an area around a spring off the Woodward Neighborhood Road in the northeast corner of Enosburgh, which has been designated as a "Groundwater Source Protection Area" by the State of Vermont. This district also includes an area in Northwest Enosburgh which is a water recharge area for the Village of Enosburg Falls.

FLOOD HAZARD OVERLAY DISTRICT.
The purpose of this District is to prevent increases in flooding caused by development in flood hazard areas, to minimize future public and private losses due to flood, and to promote the public health, safety, and general welfare. Designation of this District is also required for continued eligibility in the National Flood Insurance Program (NFIP). Included are all areas in the 100-year floodplain as identified on the Flood Insurance Study map(s). The Flood Hazard District overlays other districts and places additional restriction upon development in the areas to which it applies.

NATURAL RESOURCE OVERLAY.
Designation of this district is intended to protect the scenic and natural resource values of lands which are important for wildlife and wildlife habitat, and which are poorly suited for development because of their environmental constraints. This area maintains large tracts of forest, protects significant wildlife habitat, and ensures connectivity between habitats. Land uses and development in this district should be planned and designed to be compatible with the surrounding characteristics of the landscape, to be harmonious with wildlife habitat and the species that depend on this habitat and should recognize and protect the full range of vegetative and animal habitats and species in the Town. The district includes areas which have significant geologic features, unusual or important plant and animal qualities of scientific, ecological or educational interest, steep slopes, waterways and significant wildlife habitat.

WETLAND OVERLAY DISTRICT.
The purpose of the Wetland Overlay District is to protect the natural system functions (e.g. water and air purification, flood attenuation, speciation, and nutrient cycling) that are critical to support the human, animal, and plant populations in Enosburgh.

Goals, Policies and Recommendations.

GOALS:

- Maintain the traditional village center surrounded by a landscape of farms, forestry, and rural countryside.
- Encourage development in the rural areas of town to be clustered to preserve the open rural landscape that defines Enosburgh for the future.
- Preserve the working landscape of farms and managed forests to support economic opportunities.
- Promote and enhance the historic features and character of the Village.

POLICIES:

- Encourage and preserve the dense development in traditional village centers; maintain the character of existing neighborhoods and discourage strip development.
- Encourage clustering of residential development to conserve open areas for recreation, aesthetics, agriculture, and forestry.
- Support the vitality of the Central Business District while accommodating larger scale, more land intensive commercial development.
- Promote a pattern of land uses which connect the Central Business District to outlying commercial areas via pedestrian paths, sidewalks, public green spaces, and landscaping.
- Promote industrial expansion and the development of new industries.
- Utilize the scenic natural features of the Village to enhance the business climate and supply the recreational needs of the community.
- Conserve productive lands and maintain forest health by accommodating development in areas apart from most farming and forestry activity.
- Prohibit development on slopes greater than 20% and minimize clearing of natural vegetation on steep slopes.
- Discourage development in areas with steep slopes, shallow soils, high water table, or productive agricultural soils.
- Protect scenic ridges by prohibiting development above 1,500 ft in elevation.
- Protect water quality by limiting development in Groundwater Source Protection Areas, wetlands, and along stream banks.
- Recognizing the community's susceptibility to flooding, new development shall conform to adopted floodplain regulations to protect public health, welfare and safety.
- Continue to support the efforts of the conservation commission and local land trust.

Chapter 13: Compatibility with Neighboring Towns and the Region

Enosburgh is located in central Franklin County and bordered by the communities of Franklin, Berkshire, Richford, Montgomery, Bakersfield, Fairfield, and Sheldon (See Figure 13.1). Land use patterns in all of these towns can affect one another in many different ways. It is important that all of their development patterns are compatible with each other. It is also important that each town's future development plans do not adversely affect their bordering neighbor's plans. The Enosburgh Municipal Plan does not propose any major changes to its land use districts, and because of this, no substantial conflicts with adjoining Town Plans should arise.

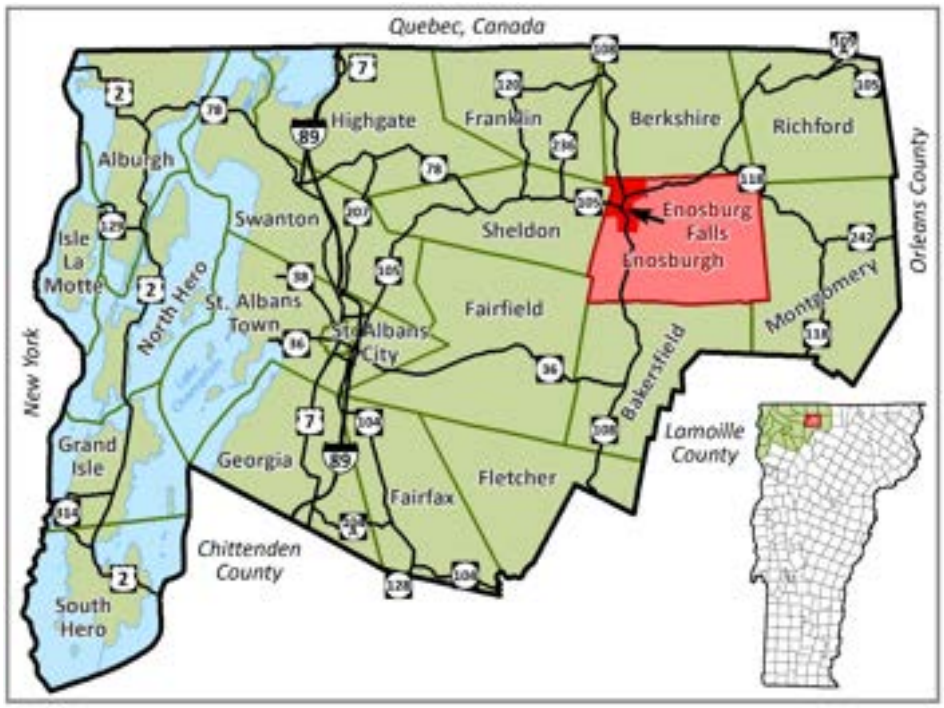


Figure 13.1. The Location of Enosburgh in Relation to the Surrounding Communities and the Northwest Region of Vermont (Franklin and Grand Isle Counties)

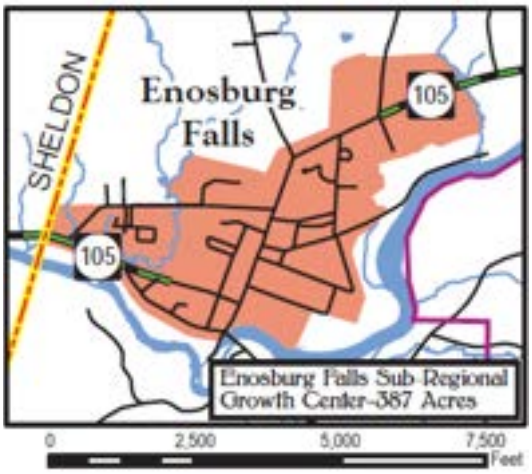
Planning with Adjacent Communities.

The community shares a variety of common resources, infrastructure, and issues with adjacent communities. It is important that all parties work together in planning for and managing these shared interests. In addition to managing growth, the quality and supply of public drinking water is an important multi-town interest. The Village of Enosburg Fall's municipal water supply is located in the Town of Berkshire and Berkshire's is in the Town of Enosburgh. It is vital that these communities manage the land use in those areas so that the quality of the community water supplies is protected.

Compatibility with Adjacent Land Use Plans.

Enosburgh's Land Use plan is compatible with the land use plans for the region and adjacent municipalities. There are however, a few areas that require cooperation between adjacent municipalities to control growth around the Village of Enosburg Fall's sub-regional growth center (Map 13.1) and industrial areas. Within the Village of Enosburg Falls, the growth center is mainly composed of high density residential development, the Central Business District, and commercial and industrial development. However, on the Village's edge, the growth center borders Sheldon along Route 105 and corresponds to Sheldon's Rural Lands District I that

allows for commercial development as a Conditional Use or based on Site Plan review and to the east the Village's Industrial District borders the Town of Enosburgh's Agricultural District. There is a risk that the growth center and Industrial District will increase the development pressure in adjacent areas and create sprawl along Route 105. While it is important for Enosburgh to keep implementing planned growth and master planning with careful consideration of access management, landscaping, and Franklin County's rural character, it is also important for adjacent communities to consider land use planning from a multi-town perspective and to consider the consequences of growth. In order to prevent sprawl outside of designated areas, strict land use controls may be necessary, such as limited allowed uses, planned unit developments, and access management.



Map 13.1. Enosburgh's Sub-Regional Growth Center Area

Compatibility of this plan with those of adjacent municipalities and the Region was undertaken by reviewing those plans and zoning districts along the borders of Enosburgh. The majority of the areas at the border of Enosburgh are in the current Agricultural or Rural zoning districts, which allow density of 1-acre lot for residential or professional services and 5 acres for allowed commercial and industrial uses. The borders along the Village of Enosburg Falls to Sheldon, Franklin, and Berkshire abut the current Low Density Residential, Agricultural/Rural Residential, and Conservation districts. The Low Density Residential establishes less than 1-acre minimum lot sizes and the Agricultural/Rural Residential establish a minimum size of 2 to 2.5-acres depending on use.

Similar zoning districts exists in the adjoining municipalities:

Franklin Rural Residential/Agricultural District.

Berkshire Rural Lands District (5-acre zoning). Berkshire's Wellhead Protection Overlay (10-acre zoning) and Flood Hazard Overlay along this border correspond with Enosburgh's designated districts.

A consideration to note, in Berkshire's most current Land Use and Development Regulations (adopted February 18, 2019), a wellhead/source water protection area is identified to provide protection to the water supply. However, residential uses are allowed as a conditional use in the protection area and the regulation of onsite septic systems is out of the town's authority. Berkshire should carefully review new development to assure that there will be no negative impact to water quality or supply and in the future, assess whether new development should be prohibited.

Richford Agriculture District (2-acre zoning).

Montgomery Agricultural/Residential District (4-acre zoning) and the Conservation I and II Districts (10-and 20-acre zoning respectively).

Bakersfield Primarily Rural District (10-acre minimum) with the higher elevation areas to the east in Conservation District (25-acre minimum).

Fairfield Agricultural/Rural Residential District (1-acre, expect 35-acres for camps), Chester A. Arthur Scenic District is a 1,000ft buffered area around the Chester A Arthur Road and has special conditions outlined in their zoning.

Sheldon Districts Rural Lands I and II (1 acre and 10-acre zoning respectively); the Rural Lands I district consists of a buffered area around all town and state roads.

Compatibility with the Regional Plan

The Regional Plan was most recently adopted in August 2007 and is currently in the process of being updated. Many of the Regional Plan's goals and policies were based on ideas expressed in local plans. Though the goals and policies listed in the Regional Plan are consistent with the goals and policies that each town has listed in their own plans, they may be tailored somewhat to each town.

Chapter 14: Implementation

IMPLEMENTATION RECOMMENDATIONS	WHO'S INVOLVED?	*STATUS*
HISTORIC, ARCHEOLOGICAL & SCENIC RESOURCES		
1. Provide improved wayfinding and promotion of public sites with historic and scenic significance, such as the Bridge of Flowers and Light, Town Forest, Opera House and the Missisquoi Valley Rail Trail. Work with the Trustees to ensure tis perspective is addressed in scoping study for streetscape and wayfinding.	Historical Society; Planning Commission; Conservation Commission	Scoping Study to be completed by 2021. Design and construction should be completed by 2028.
2. Review the allowable land uses, dimensional requirements, street design and parking requirements in the zoning bylaws to ensure that they promote the historic character of Village neighborhoods and Village center.	Planning Commission	Complete during next zoning revision by 2025.
3. Monitor Village Zoning Bylaw provisions that provide incentives for the adaptive reuse of historic structures. As a first step, inventory projects that have been approved under this criterion. Consider adding and adaptive reuse provision to the Town's regulations.	Planning Commission, Zoning Administrator	Complete prior to next zoning revision, before 2025.
4. Continue to pursue historic markers for important historic landmarks in the Village and Town.	Historical Society, High School	Two markers done, complete at least 4 more markers by 2028.
5. Promote a historic walking tour of the village with the major landmarks. Evaluate whether changes should be made and develop marketing materials and messaging.	Historical Society, other interested partners	By 2025
6. Collaborate on community events that highlight Enosburgh's historical heritage.	Historical Society, Enosburg Business Association	Ongoing
NATURAL RESOURCES		
7. Maintain and update a multiple use forest management plan for the town forest.	Conservation Commission	Once every 5 years (next 2025).
8. Provide educational materials and assistance in planning to prevent or minimize destruction of core habitat and wildlife connectivity areas. Discuss how	Conservation Commission	Ongoing

IMPLEMENTATION RECOMMENDATIONS	WHO'S INVOLVED?	*STATUS*
best to achieve this.		
HOUSING		
9. Consider adoption of a basic building code to ensure health and safety of residents and community.	Manager / Planning Commission	Make determination by 2025
10. Complete a housing needs analysis to ensure Enosburgh continues to meet the communities' housing needs.	Planning Commission	By 2028
11. Review the zoning bylaws to ensure that regulations to not inhibit and rather enable and incentivize affordable housing development.	Planning Commission	Next bylaw revision by 2025
EDUCATION		
12. Hold annual meetings with representatives from the Village Trustees, Town Select Board, Enosburgh School District, and Franklin Northeast Supervisory Union to ensure better communication and coordination of all planning needs and issues.	Planning Commission	By 2028
13. Coordinate capital budgeting and programming between the Village, Town, and School District.	Village Manager, Planning Commission	Ongoing
PUBLIC UTILITIES, FACILITIES & SERVICES		
14. Consider developing a Capital Budget & Program that includes planned expenditures for municipal utilities and facilities.	Trustees/ Planning Commission	By 2028
15. Bring together Village & Town officials to discuss a comprehensive plan for public land holdings and their best use and management.	Planning Commission	By 2028
16. Redesign and construct an expansion of the Enosburgh Recreation Fields to address multi-generational recreation needs and increase recreation offerings for the community.	Recreation Committee	By 2025

IMPLEMENTATION RECOMMENDATIONS	WHO'S INVOLVED?	*STATUS*
17. Hold a community-wide forum on child care to gain a fuller understanding of families' child care needs and the Enosburgh's child care industry.	Planning Commission, Enosburg Initiative Partners, Enosburgh School	By 2025
18. Identify a safe and accessible connection to the recreation fields by the Emergency Services Building from the existing Village facilities that will serve bicycle and pedestrian users.	Village Trustees, VTrans, Regional Planning	Funding secured; to be completed 2020
19. Provide better wayfinding for the Brownway River Trail, especially for Missisquoi Valley Trail users, as recommended in the Vital Village Master Plan.	Conservation Committee	By 2025
20. Complete a needs assessment for the Town of Enosburgh Offices, consider potential properties or options for expansion and build a reserve fund for the project.	Selectboard, Town Clerk	By 2028
TRANSPORTATION		
21. Develop a prioritized list of streets and roads where traffic studies are needed to provide information for local road/street management.	Planning Commission, Trustees, Selectboard	By 2025
22. Develop a traffic calming program for Orchard Street.	Planning Commission/ Trustees	By 2025
23. Install wayfinding and signage for public parking options in the Village.	Village Trustees, Vital Village Steering Committee	Scoping Study to be completed by 2021. Design and construction should be completed by 2028.
24. Continue to contract with State Police and Sheriff to enforce local traffic ordinances.	Trustees	Ongoing
25. Participate in regional transportation planning efforts, including the Transportation Advisory Committee, Green Mountain Transit Authority, and the Missisquoi Valley Rail Trail Council.	Planning Commission/ TAC Representative	Ongoing
26. Consider developing a Capital Budget & Program that includes a plan for local street and sidewalk. improvements, future growth of roads, bridge repair and replacement, and equipment replacement.	Planning Commission/ Village Manager	By 2028

IMPLEMENTATION RECOMMENDATIONS	WHO'S INVOLVED?	*STATUS*
27. Implement the streetscape and wayfinding enhancements to Main Street and Depot Street as proposed in the Vital Village Master Plan.	Village Trustees, Vital Village Steering Committee	Scoping Study to be completed by 2021. Design and construction should be completed by 2028
28. Prioritize and implement community wide pedestrian/bicycle/mobility enhancements as recommended in the Vital Village Master Plan.	Trustees, Vital Village Steering Committee	By 2028
29. Work with the Vermont Agency of Transportation to install the trailhead parklets on the west and east side of Main Street where the Missisquoi Valley Rail Trail crosses.	Trustees, Vital Village Steering Committee	By 2021
HAZARD RESILIENCY		
30. Work with first responders, Emergency Management, and the road crew to plan improved emergency response capacity (operations, training, equipment) during natural disasters.	Emergency Management Director/Public Works	Ongoing
31. Adopt the Vermont River Corridor standards to regulate development in high risk areas for flooding or erosion hazards and gain access to additional Emergency Relief and Assistance Funds for disaster recovery.	Planning Commission	Next bylaw update by 2025
32. Explore participation in the FEMA Community Rating System (CRS) so as to secure a discount on flood insurance.	Planning Commission/ Selectboard/ Trustees	Next bylaw update by 2025
ENERGY		
33. Complete any remaining energy audits on municipal buildings and develop a schedule for needed improvements.	Manager/ Trustees	By 2025
34. Modify development regulations to require or incentivize the use of energy efficient building and site design techniques.	Planning Commission/ Zoning Administrator	Next bylaw update by 2025
35. Work with Selectboard and Trustees, along with municipal staff to establish energy standards for all public facilities and equipment.	Planning Commission	By 2028
36. Provide education and outreach to residents on energy efficiency and conservation measures.	Zoning Administrator	Ongoing

IMPLEMENTATION RECOMMENDATIONS	WHO'S INVOLVED?	*STATUS*
ECONOMY		
37. Establish and maintain communications with the Enosburg Falls Economic Development Corporation, Enosburgh Business Association, Village and Town officials, school district, and local business people to best serve the community and surrounding areas.	Planning Commission	Ongoing
38. Support efforts of the Enosburgh Initiative, Enosburg Business Association and other community groups on expanding economic opportunities in the Village and Town.	Trustees, Selectboard, Planning Commission	Ongoing
39. Work with the Franklin County Industrial Development Corporation and the Enosburg Falls Economic Development Committee to encourage occupancy of the Enosburg Falls Industrial Park.	Trustees, Selectboard, Planning Commission	Ongoing
40. Promote and provide wayfinding for the Missisquoi River and Missisquoi Rail Trail as recreational resources and attractions to the Village.	All Municipal Boards	Scoping Study to be completed by 2021. Design and construction should be completed by 2028
41. Develop a community wide brand that will bolster community pride and cohesion and help to define the visitor experience.	Trustees, Selectboard, Vital Village Steering Committee	By 2022
42. Design and install a gateway and wayfinding signage scheme for the entire village that both introduces and orients visitors to the village and its places of interest.	Trustees, Vital Village Streeting Committee	Scoping Study to be completed by 2021. Design and construction should be completed by 2028
43. Foster and support the Vital Village Steering Committee in implementing the Vital Village Master Plan.	Trustees, Selectboard	Ongoing
44. Review sign regulations to ensure they are compatible with the pedestrian oriented traditional village center and the Vital Village Master Plan.	Planning Commission	Next bylaw update by 2025

IMPLEMENTATION RECOMMENDATIONS	WHO'S INVOLVED?	*STATUS*
45. Research what the community can do to support and foster agro-tourism opportunities in the community.	Planning Commission, Vital Village Steering Committee	By 2025
LAND USE		
46. Work with landowners, the Vermont Agency of Transportation and Regional Planning Commission to develop a comprehensive long-range plan for access onto Route 105, which provides safe access while limiting curb cuts.	Planning Commission	By 2028
47. Maintain and implement development regulations that effectively preserve prime agricultural lands and maintain the productivity of agricultural land.	Planning Commission, DRB	Next bylaw update by 2025
48. Review Development Regulations to ensure that development maintains the character of the traditional village setting (for example development is oriented towards the public right of way, includes sidewalks and other pedestrian amenities, and is appropriately landscaped, including street trees).	Planning Commission and DRB	Next bylaw update by 2025
49. Identify critical habitat areas in order to prevent or mitigate harm during planned development.	Conservation Commission/ Planning Commission	By 2028

BERLIN, VERMONT

A TOWN PLAN FOR

being a hub of commerce and industry
developing an identifiable and vibrant town center
preserving rural character and working lands

ADOPTED 14 AUG 2018

Credits

Adopted:

14 AUG 2018

Prepared by:

Berlin Planning Commission
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PLACE SENSE
Brandy Saxton, AICP

COVER PHOTOS: TOBY TALBOT

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PHOTO: TOBY TALBOT

1. INTRODUCTION

Berlin is a town of 36.9 square miles in Washington County, Vermont. Berlin was chartered in 1763; the first town meeting was held in 1791 when the town had 134 residents. The population in 2018 was about 2,800 people living in 1,200 households.

Berlin has become an employment and commercial center in Central Vermont due to its location between the cities of Montpelier and Barre, and its accessibility from Interstate 89. It is home to the regional hospital, shopping mall, train station and airport. There were approximately 5,200 jobs based in Berlin in 2016.

On the 2017 Community Survey, residents described Berlin as...

1A. Vision

The vision below expresses Berlin's overall direction and is intended to help town government and community members connect many small actions and measure achievement towards larger objectives. Having a shared vision will allow townspeople to come together, set goals and evaluate progress over time.

Berlin will be a town:

- That is a **hub of commerce and industry** for the region with revitalized commercial areas and a diverse economic base;
- With an **identifiable and vibrant town center** – a place where people can live, work, eat, shop and gather – that promotes a greater sense of community and attracts new residents; and
- That **preserves its rural character and working lands** – the open spaces, viable farms, working forests, low-density settlement pattern, natural resources and scenic views that characterize most areas of town.

1B. Purpose

The Berlin Town Plan states the town's objectives, policies and actions for guiding future land use and development in the community consistent with the vision expressed above. The plan allows decisions to be made by considering the future of the community as a whole. Planning can help manage the cost of public services and ensure that investments benefit everyone.

This plan will help Berlin continue to provide and maintain infrastructure, attract residents and businesses, and protect natural resources and rural character. More people can choose to live and work anywhere and more are looking for places that offer a high quality of life. More people want to live in walkable, connected, distinctive communities, rather than in generic subdivisions or on remote house lots. This plan outlines the deliberate steps needed to maintain, improve and revitalize Berlin so that it can be a great place to live and work now and into the future.

The primary purpose of this plan is to establish and communicate public policy. When guided by this plan, local decision-making should be transparent and predictable. The plan serves as a foundation for Berlin's land use and development regulations. Those regulations must implement the vision expressed above and the objectives found throughout this plan.

1C. Authority to Plan

The Vermont Planning and Development Act (24 V.S.A. Chapter 117) grants municipalities the authority to prepare and implement a comprehensive plan. It establishes minimum requirements for what must be included in such plans, and requires plans to be consistent with the state's planning goals (*see "1G. State Planning Goals" on page 3*). Town plans also must be compatible with the regional plan (*see "Central Vermont Region" on page 15*). Once adopted, town plans remain in effect for eight years. Having a current, adopted town plan is required for Berlin to apply for grants and other assistance to fund improvements.

1D. Planning Process

Berlin adopted its first town plan in 1971. This plan has been regularly updated and re-adopted since. The town plan was most recently re-adopted in 2012. This 2018 plan represents a significant change to the format of the plan, but not a substantial change in the vision and goals.

The Berlin Planning Commission worked on a comprehensive revision of the town's land use regulations for all of 2015 through 2017. That process included numerous public meetings and work sessions where residents discussed future land use and development in Berlin. Those community conversations indicated that:

- The vision to **transform** the Berlin Mall and surrounding area into a town center, which was first expressed in the 2005 town plan, remains valid and strongly supported by residents;
- Residents generally want future growth to be focused in the northeast quadrant and want the remainder of town to **maintain** its rural character and working landscape; and
- There is interest in seeing the existing commercial corridors along Route 2 and Route 302 **evolve** so that they are economically competitive and attractive locations for commercial and light industrial activities as shopping and lifestyle preferences change.

The Planning Commission conducted additional public meetings and a community survey while working to prepare this 2018 town plan that further confirmed ongoing support for the overall vision expressed in the 2012 plan. Responses to the community survey are presented throughout this plan.

The Vermont Planning and Development Act establishes the process by which town plans must be adopted, which includes public hearings by both the Planning Commission and Selectboard. That process was followed to re-adopt this 2018 plan.

1E. Using the Plan

The Berlin Town Plan provides a framework for attaining the vision expressed above through capital budgeting and public investments, the town's land use and development regulations, participation in various state programs, and other implementation measures. In addition to guiding local decision-making, the plan is considered by regional and state agencies as they plan, develop and fund programs, provide services, locate facilities, and enact regulations. It is also used in state regulatory proceedings such as Act 250 and Section 248 permitting processes to determine whether proposed development is consistent with community goals and standards.

When using this plan for a regulatory purpose, the objectives, policies and actions found throughout must be considered in context as part of a whole rather than as individual statements meant to stand alone. Berlin, as all communities, has competing objectives that must be balanced on a case-by-case basis using this plan as a guide for those decisions.

This plan is organized into seven chapters. Each chapter includes a series of objectives, policies and actions.

- **Objectives** are attainable targets for accomplishing one or more goals. They should be specific and measurable so that the community can determine when they have been met.
- **Policies** are definite courses of action to attain (or contribute to attaining) one or more objectives. They are intended to guide all relevant decision-making by town government, and in those circumstances where the plan is intended to influence regional or state decision-making.
- **Actions** are the next steps – concrete activities or programs intended to attain (or contribute to attaining) one or more objectives that town government will implement during the 8-year planning period.

Goals are not listed in each chapter because this plan incorporates the state's planning goals as Berlin's planning goals. The objectives and policies from each chapter are intended to further those goals (*see "1G. State Planning Goals" on page 3*).

1F. Other Plans and Studies

This plan references a number of prior planning studies and other plans, both municipal and regional, as well as a wealth of data provided by organizations and agencies at the state or federal level. When other plans, studies or data sources are referenced in this plan, those documents or resources should be considered in their original and full context.

2018

Scoping Report for US 302 Bridge 3 over Stevens Branch
VT Agency of Transportation

2017

Basin 8 - Winooski River Watershed Water Quality and Aquatic Habitat Assessment Report
VT Agency of Natural Resources Watershed Management Division

Source Protection Plan Update: Montpelier Water System
Dufresne Group Consulting Engineers

Berlin Park and Ride: Alternatives Analysis Memo
Green International Affiliates, Inc.

Berlin Stormwater Master Plan
Watershed Consulting Associates, LLC

2016

A New Town Center for Berlin Presentation
Land Strategies

2015

US 302 Berlin Bicycle and Pedestrian Scoping Study
Dubois & King, Inc.

Solid Waste Implementation Plan
Central Vermont Solid Waste Management District

2014

Memorandum of Decision on Montpelier's Petition in re Berlin Pond
VT Agency of Natural Resources, Dep't of Environmental Conservation

2012

Winooski River Basin Water Quality Management Plan
VT Agency of Natural Resources Watershed Management Division

Town of Berlin Local Mitigation Plan
Central Vermont Regional Planning Commission

City of Montpelier v. Barnett, Sanborn & Natural Resources Board
Vermont Supreme Court (2012 VT 32 re Berlin Pond)

2011

Forest Management Plan for the Berlin Town Forest

2009

Dog River Corridor Plan: Roxbury, Northfield, Berlin & Montpelier, VT
Bear Creek Environmental, LLC

Edward F. Knapp State Airport Business Plan
Vermont Agency of Transportation

2008

Town of Berlin Economic Development Plan
devonomics

2007

Draft Conceptual Plan for the Town Center

2004

The Berlin Mall Village Center Study
Wilbur Smith and Associates

2002

Berlin Pond Watershed Conservation Plan
Vermont River Conservancy

1999

Citizens Vision of Berlin
Berlin Planning Commission

1997

Berlin Pond Natural Area
Berlin and Montpelier Conservation Commissions

1992

Waterfowl Management Handbook: Human Disturbances of Waterfowl: Causes, Effects and Management
US Fish and Wildlife Service

1990

Berlin State Register Nomination Forms
Vermont Division for Historic Preservation

PHOTO: TOBY TALBOT

PHOTO: TOBY TALBOT

1G. State Planning Goals

The 2018 Berlin Town Plan is consistent with the 14 state planning goals listed in the Vermont Planning and Development Act as demonstrated below. To be 'consistent with a goal' requires that one or more objectives identified in this plan will result in Berlin making substantial progress towards attaining the stated goal. This plan incorporates the state's planning goals as Berlin's planning goals. The table below states each goal and identifies the related objectives and policies established in this plan.

1	To plan development so as to maintain the historic settlement pattern of compact village and urban centers separated by rural countryside.	**LAND USE,** page 5, Objectives 1, 2, 3, 4, 5 **UTILITIES & FACILITIES,** page 21, Objective 3 **HOUSING,** page 25, Objective 3 **ECONOMIC DEVELOPMENT,** page 27, Objective 1	**LAND USE,** page 5, Policy 1 **TRANSPORTATION,** page 19, Policies 1, 2 **UTILITIES & FACILITIES,** page 21, Policy 1 **ENERGY,** page 23, Policies 1, 2, 9 **HOUSING,** page 25, Policies 1, 5, 6
2	To provide a strong and diverse economy that provides satisfying and rewarding job opportunities and that maintains high environmental standards, and to expand economic opportunities in areas with high unemployment or low per capita incomes.	**LAND USE,** page 5, Objectives 1, 3, 5, 8 **HOUSING,** page 25, Objective 1 **ECONOMIC DEVELOPMENT,** page 27, Objectives 1, 2, 3, 4	**LAND USE,** page 5, Policy 1 **TRANSPORTATION,** page 19, Policies 2, 3 **UTILITIES & FACILITIES,** page 21, Policy 1 **ENERGY,** page 23, Policy 2 **HOUSING,** page 25, Policies 1, 2 **ECONOMIC DEVELOPMENT,** page 27, Policies 1, 2, 3
3	To broaden access to educational and vocational training opportunities sufficient to ensure the full realization of the abilities of all residents.	**UTILITIES & FACILITIES,** page 21, Objective 1	**UTILITIES & FACILITIES,** page 21, Policy 4 **ECONOMIC DEVELOPMENT,** page 27, Policy 1
4	To provide for safe, convenient, economic and energy efficient transportation systems that respect the integrity of the natural environment, including public transit options and paths for pedestrians and bicyclers.	**TRANSPORTATION,** page 19, Objectives 1, 2 **ENERGY,** page 23, Objective 1	**LAND USE,** page 5, Policy 1 **TRANSPORTATION,** page 19, Policies 1, 2, 3, 5, 6, 7, 8 **ENERGY,** page 23, Policy 1 **HOUSING,** page 25, Policies 1, 6
5	To identify, protect, and preserve important natural and historic features.	**LAND USE,** page 5, Objectives 4, 6, 7 **ENERGY,** page 23, Objective 2 **HOUSING,** page 25, Objective 4 **FLOOD RESILIENCE,** page 29, Objective 3	**LAND USE,** page 5, Policies 1, 2, 4, 5 **ENERGY,** page 23, Policy 9 **HOUSING,** page 25, Policies 5, 6 **FLOOD RESILIENCE,** page 29, Policies 2, 6
6	To maintain and improve the quality of air, water, wildlife, forests, and other land resources.	**LAND USE,** page 5, Objectives 6, 7 **UTILITIES & FACILITIES,** page 21, Objective 4 **HOUSING,** page 25, Objective 4 **FLOOD RESILIENCE,** page 29, Objective 3	**LAND USE,** page 5, Policies 1, 2, 3, 4, 5 **UTILITIES & FACILITIES,** page 21, Policy 2 **ENERGY,** page 23, Policy 9 **HOUSING,** page 25, Policies 5, 6 **FLOOD RESILIENCE,** page 29, Policies 2, 5, 6
7	To make efficient use of energy, provide for the development of renewable energy resources, and reduce emissions of greenhouse gases.	**LAND USE,** page 5, Objectives 1, 2 **TRANSPORTATION,** page 19, Objectives 1, 2 **ENERGY,** page 23, Objectives 1, 2, 3 **HOUSING,** page 25, Objective 3	**LAND USE,** page 5, Policy 1 **TRANSPORTATION,** page 19, Policies 1, 2, 4, 6, 7 **UTILITIES & FACILITIES,** page 21, Policy 1 **ENERGY,** page 23, Policies 1, 2, 3, 4, 5, 6, 7, 8, 9 **HOUSING,** page 25, Policies 1, 6

8	To maintain and enhance recreational opportunities for residents and visitors.	**UTILITIES & FACILITIES,** page 21, Objective 1	**LAND USE,** page 5, Policies 1, 2, 5 **TRANSPORTATION,** page 19, Policies 6, 7 **UTILITIES & FACILITIES,** page 21, Policy 4
9	To encourage and strengthen agricultural and forest industries.	**LAND USE,** page 5, Objectives 4, 5 **ENERGY,** page 23, Objective 2 **HOUSING,** page 25, Objective 4 **ECONOMIC DEVELOPMENT,** page 27, Objective 4	**LAND USE,** page 5, Policy 1 **ENERGY,** page 23, Policy 9 **HOUSING,** page 25, Policies 5, 6 **ECONOMIC DEVELOPMENT,** page 27, Policies 1, 3
10	To provide for the wise and efficient use of Vermont's natural resources and to facilitate the appropriate extraction of earth resources and the proper restoration and preservation of the aesthetic qualities of the area.	**LAND USE,** page 5, Objectives 4, 5 **ENERGY,** page 23, Objective 2	**LAND USE,** page 5, Policies 1, 7 **ENERGY,** page 23, Policies 3, 5, 6, 9 **HOUSING,** page 25, Policies 5, 6
11	To ensure the availability of safe and affordable housing for all Vermonters.	**LAND USE,** page 5, Objective 2 **HOUSING,** page 25, Objectives 1, 2, 3 **ECONOMIC DEVELOPMENT,** page 27, Objective 3 **FLOOD RESILIENCE,** page 29, Objectives 4, 5	**LAND USE,** page 5, Policy 1 **TRANSPORTATION,** page 19, Policies 1, 8 **UTILITIES & FACILITIES,** page 21, Policy 1 **ENERGY,** page 23, Policies 1, 5, 8 **HOUSING,** page 25, Policies 1, 2, 3, 4 **FLOOD RESILIENCE,** page 29, Policies 3, 5
12	To plan for, finance and provide an efficient system of public facilities and services to meet future needs.	**LAND USE,** page 5, Objective 8 **UTILITIES & FACILITIES,** page 21, Objectives 1, 2, 3 **ECONOMIC DEVELOPMENT,** page 27, Objective 5 **HOUSING,** page 25, Objective 3	**LAND USE,** page 5, Policies 1, 6 **TRANSPORTATION,** page 19, Policies 2, 3, 4, 5, 6, 7 **UTILITIES & FACILITIES,** page 21, Policies 1, 3 **ENERGY,** page 23, Policies 1, 2, 3, 7 **HOUSING,** page 25, Policies 1, 6 **FLOOD RESILIENCE,** page 29, Policies 3, 5
13	To ensure the availability of safe and affordable child care and to integrate child care issues into the planning process, including child care financing, infrastructure, business assistance for child care providers, and child care work force development.	**UTILITIES & FACILITIES,** page 21, Objective 1	**UTILITIES & FACILITIES,** page 21, Policy 4
14	To encourage flood resilient communities.	**HOUSING,** page 25, Objective 4 **FLOOD RESILIENCE,** page 29, Objectives 4, 5	**LAND USE,** page 5, Policies 1, 3, 4 **TRANSPORTATION,** page 19, Policy 8 **UTILITIES & FACILITIES,** page 21, Policy 2 **ENERGY,** page 23, Policies 1, 2, 3, 7 **HOUSING,** page 25, Policies 4 **FLOOD RESILIENCE,** page 29, Policies 1, 2, 3, 4, 5, 6

PHOTO: TOBY TALBOT

OBJECTIVES

1. Focus commercial and industrial development in the northeast quadrant.
2. Increase the amount of housing in Berlin, diversify the housing stock, and guide most residential growth to the northeast quadrant.
3. Revitalize existing commercial areas in the northeast quadrant to improve aesthetics, access, and economic competitiveness.
4. Preserve rural character and working lands in the areas of town outside the northeast quadrant.
5. Maintain the base of working farm and forest land outside the northeast quadrant necessary to support viable farm and forestry businesses.
6. Prevent adverse environmental impacts resulting from irresponsible land use and development practices.
7. Improve or maintain the health of Berlin's surface waters as necessary to meet water quality standards.
8. Maintain a balanced tax base that generates the revenue necessary to provide municipal services without overburdening residential property owners.

POLICIES

1. Implement the recommendations for maintaining, evolving and transforming land use set forth in Section2D of this plan.
2. Support the permanent conservation of publicly owned land around Berlin Pond, and maintain low-impact public recreation use commensurate with the pond's function as a public water supply and its natural resource values.
3. Ensure that stormwater run-off from developed land is managed at the source so it will not place an undue burden on public infrastructure, increase flood hazards or reduce water quality.
4. Guide development away from surface waters and encourage landowners to maintain or establish riparian buffers.
5. Encourage and support continued permanent conservation of farmland, forest land and natural areas outside the northeast quadrant.
6. Prioritize conservation efforts that would connect to existing public and conserved lands on Irish Hill, Paine Mountain and Berlin Pond.
7. Seek PILOTs for tax-exempt properties that are commensurate with demand on town services.
8. Allow resource extraction in rural and industrial areas of town that is undertaken in accordance with town and state regulations to avoid or mitigate off-site and environmental impacts.

2. LAND USE

2A. Current Land Use

Berlin's current land use pattern is evident from the land cover map to the right:

- Most development is focused in the northeast quadrant in proximity to Exit 7 and state highways, the airport, and the adjoining urban centers of Montpelier and Barre City.
- There are less intense concentrations of development along the Route 12 and Junction Road corridors, and at Exit 6.
- Forested hillsides and ridgelines dominate the landscape in most areas of town.
- Small pockets of agricultural land remain in productive use in the valleys.

This land use pattern began to emerge in the 1960s as commercial activity expanded out along the Route 2 and Route 302 corridors, and more fully developed following construction of Interstate 89 in the 1970s and the resulting growth in the Central Vermont region during the 1980s and 1990s. It was during this period that Berlin went from being an agricultural community to an employment and commercial center in the region. Berlin's overall land use pattern has changed little during the past 25 years.

Commercial and Industrial

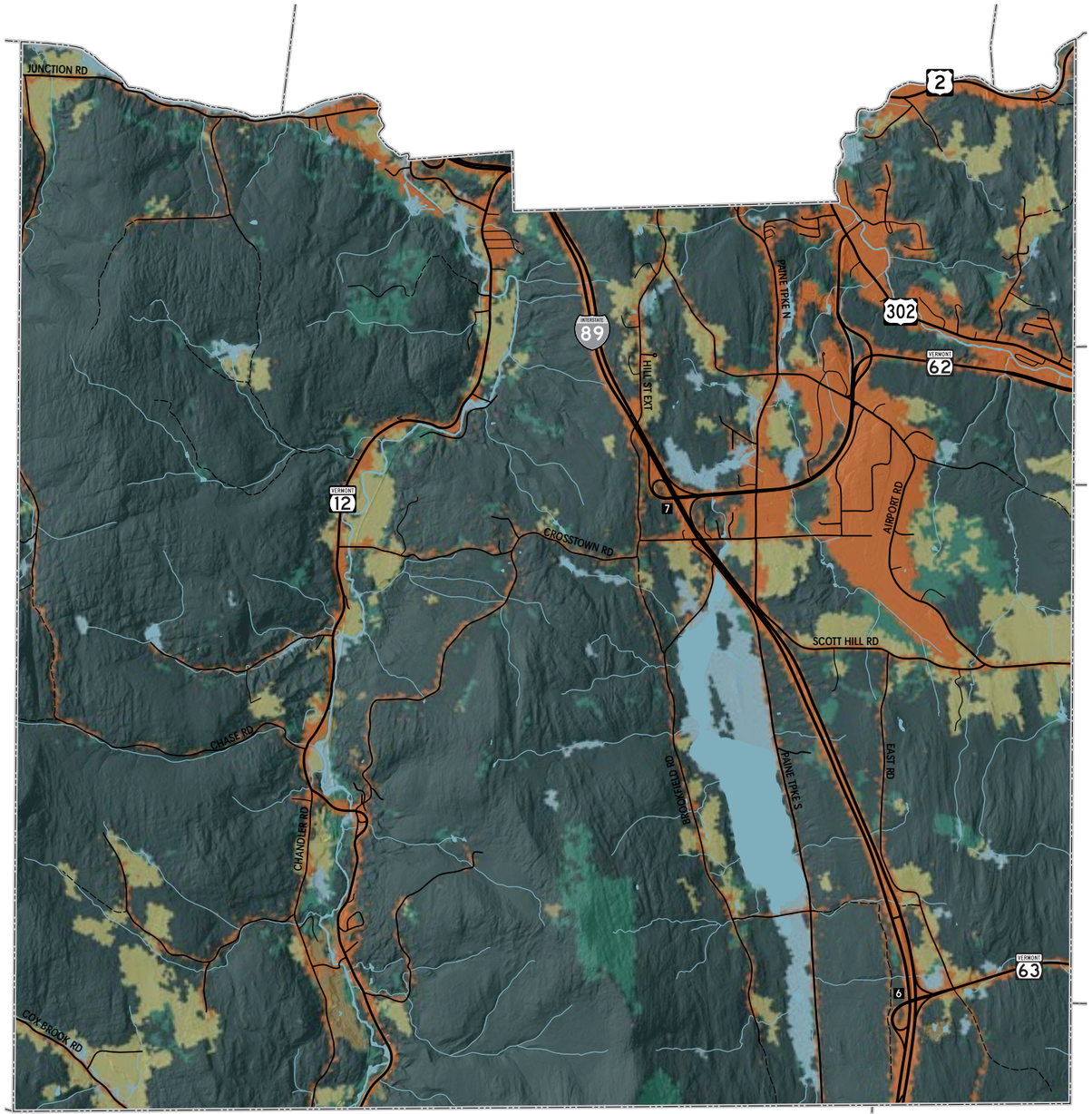
Commercial and industrial uses are concentrated in the northeast quadrant (*see "Commercial and Industrial Areas" on page 28*), although there are some businesses located in the Junction Road - Dog River Road area, dispersed along Route 12 , in Riverton and at Exit 6. *Chapter 7. Economic Development (page 27)* provides more information about commerce and industry in Berlin.

Residential

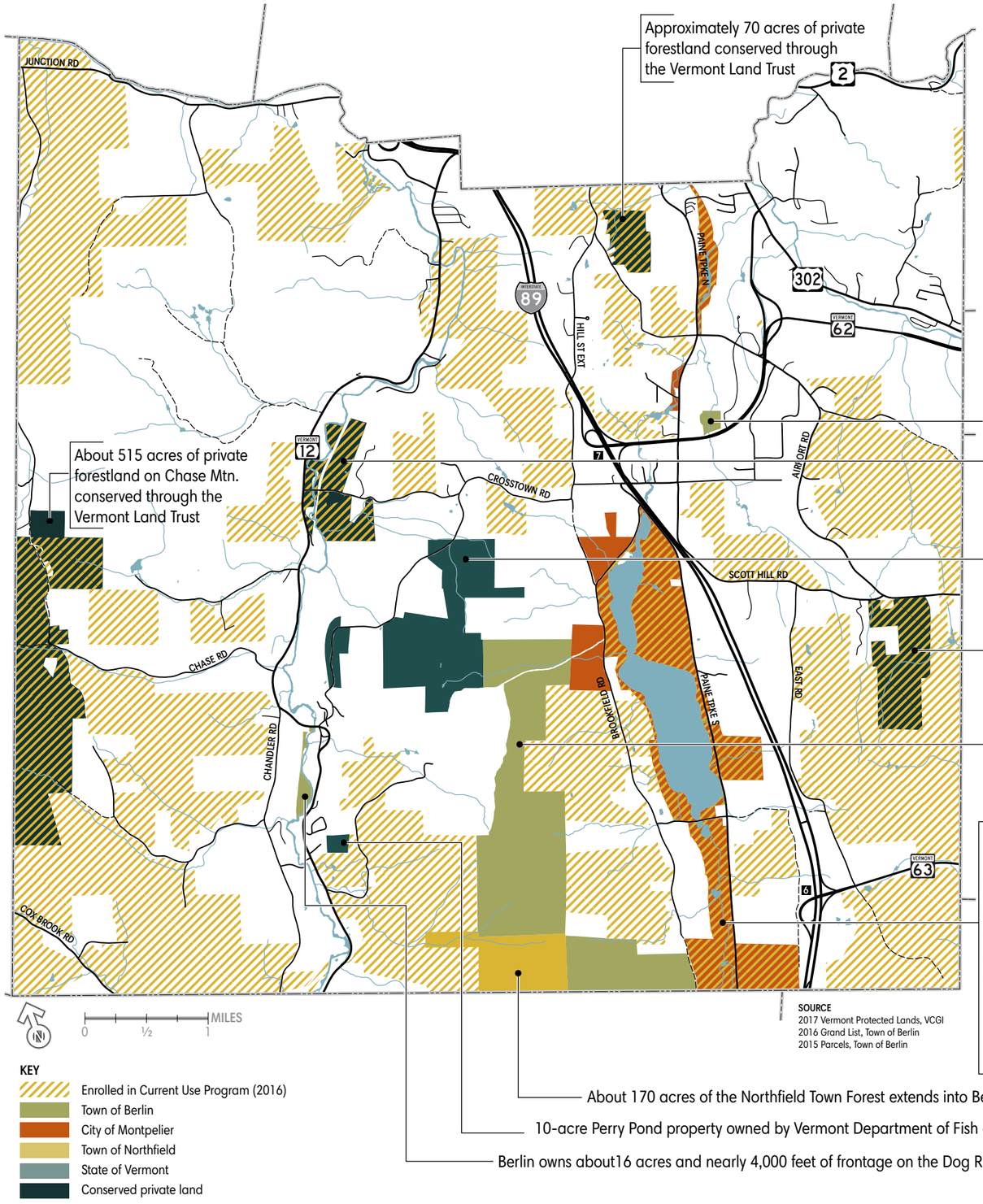
Chapter 6. Housing (page 25) provides more information about Berlin's housing stock. Residential development is dispersed throughout town (*see "Housing Map" on page 25*) and:

- Fewer than 10 homes were built per year in Berlin on average between 2002 and 2016. During that period, about 25% of the new homes in town were built in the Partridge Farm subdivision.
- Single-family homes located on an acre or more of land predominate, accounting for 64% of the 738 homestead (owner-occupied residential) properties on Berlin's 2016 Grand List.

Berlin Land Cover, 2011



Berlin Conservation and Open Space Map



Approximately 70 acres of private forestland conserved through the Vermont Land Trust

About 515 acres of private forestland on Chase Mtn. conserved through the Vermont Land Trust

11-acre Berlin Elementary School Forest

130-acre Rogers Farm, including 40 acres along the Dog River conserved through the Vermont River Corridor Easement Program

355-acre Boyer State Forest, which the state uses for workshops and tours demonstrating multiple resource management techniques to private landowners. It also provides a variety of recreational opportunities including hiking, mountain biking, cross-country skiing, snowshoeing, hunting and wildlife viewing.

190-acre Thompson Farm, conserved through the Vermont Land Trust

Berlin owns approximately 720 acres of Town Forest, which includes the Irish Hill Conservation Area encompassing the prominent ridgeline along Irish Hill and Paine Mountain. These forest lands are open for public recreation and have extensive trail networks.

The City of Montpelier owns nearly 730 acres of undeveloped land in the Berlin Pond watershed, including nearly all the shoreland (with the exception of two parcels owned by the Town of Berlin). The pond is the source of drinking water for the city, which has controlled use of the pond and the surrounding land in order to prevent contamination of the water supply (access to the pond over the city's land is prohibited and the only access is from roadways and town-owned land). While the land remains city owned, it is effectively protected from development. If Montpelier were to develop an alternative water supply, it is possible that the city would seek to sell the land. Berlin residents strongly support permanent conservation of the land around Berlin Pond, along with maintaining low-impact public recreational access.

About 170 acres of the Northfield Town Forest extends into Berlin

10-acre Perry Pond property owned by Vermont Department of Fish and Wildlife

Berlin owns about16 acres and nearly 4,000 feet of frontage on the Dog River in Riverton

KEY

- Enrolled in Current Use Program (2016)
- Town of Berlin
- City of Montpelier
- Town of Northfield
- State of Vermont
- Conserved private land

SOURCE
2017 Vermont Protected Lands, VCGI
2016 Grand List, Town of Berlin
2015 Parcels, Town of Berlin

Current Use Program

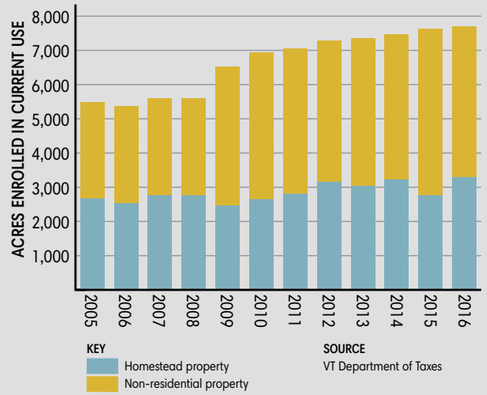
Vermont's Use Value Appraisal (UVA) Program, commonly known as 'Current Use' enables private landowners engaged in long-term forestry or agricultural practices to have their land appraised based on the property's value of production of wood or agricultural products rather than its residential or commercial development value. If land is removed from the program and is developed, the landowner must pay a land use change tax. The goal of this program is to encourage owners to keep land in productive use by reducing their tax burden.

More information on the Current Use Program is available from:

- Vermont Department of Forest, Parks and Recreation
- Vermont Agency of Agriculture
- Vermont Department of Taxes

The Current Use Program has been in place since 1980 but enrollment continues to increase steadily following changes to state education funding in the early 2000s that resulted in the establishment of the statewide education property tax.

Total Acres in Berlin Enrolled in Current Use, 2005-2016



Approximately 7,700 acres of forest land and farm land in Berlin were enrolled in the state's Current Use Program in 2016. The total amount of land enrolled in Current Use increased 40% between 2005 and 2016 and most of the additional land enrolled was non-residential property.

ACTIONS

1. Adopt revised land use and development regulations that will implement the vision, goals, objectives and policies of this plan.
2. Seek a new town center designation from the state for the Berlin Mall and surrounding area, which will require the following actions by the town: adopt an official map, adopt a capital improvement program, execute a community investment agreement with town center property owners, and dedicate water/wastewater reserves to the town center.
3. Seek village center designations from the state for Riverton and Berlin Corners.
4. Continue to extend municipal water and sewer in the northeast quadrant to support future economic growth and residential development in a manner consistent with smart growth principles and as necessary to protect public health.
5. Work with Vermont state and federal elected representatives to again petition the U.S. Postal Service to re-establish a post office and zip code for Berlin.
6. Continue to work with Montpelier, Barre City, Central Vermont Regional Planning Commission and VTrans to complete the Central Vermont Regional Bike Path in Berlin.

PHOTO: TOBY TALBOT

- 54% of the town's land area was identified as a residential property according to the 2016 Grand List. Those properties included a significant amount of forest land. There were 242 residential parcels 50 acres or larger in size.

Civic

Approximately 1,600 acres of land were used for a civic purpose according to Berlin's 2016 grand list. This included 830 acres of town-owned and 650 acres of state-owned land. Other civic land uses include the Berlin Elementary School, nonprofits such as Central Vermont Medical Center, federal facilities and religious institutions. *Chapter 4. Utilities & Facilities (page 21)* provides more information about civic facilities and services.

Berlin hosts a regional medical center, two skilled nursing facilities and a growing array of associated nonprofit healthcare and other service providers. While the nonprofit sector is a major component of Berlin's economy, it does not offer the municipal tax benefits that businesses in the private sector could. The extent to which Berlin's property taxpayers subsidize nonprofits that serve the larger region remains an ongoing concern, particularly as the healthcare sector continues to expand. As of 2016, approximately 20% of the total value of real property on the grand list was tax exempt (real and personal property used for charitable purposes is exempt from local property taxes under state law). Berlin did receive PILOTs (payments in lieu of taxes) totaling around $120,000 in 2016, but this is significantly less revenue than the town would have received if the state and nonprofits were paying their full property taxes.

Working Lands

There were 10 farm parcels accounting for about 1,400 acres of land and 44 woodland parcels totaling about 2,300 acres of land on the 2016 grand list. Approximately 7,700 acres of land in town were enrolled in Current Use in 2016 (*see "Current Use Program" on page 6*). *Chapter 7. Economic Development (page 27)* provides more information about Berlin's agricultural and forestry sectors.

Conservation and Open Space

There are nearly 2,000 acres of public conservation land and 900 acres of private conservation lands in Berlin (*see "Berlin Conservation and Open Space Map" on page 6*).

2B. Natural Resources

Surface Waters and Riparian Areas

Three surface waters – the Dog River, Berlin Pond and the Winooski River (main stem and the Stevens Branch) – are significant features in Berlin's landscape (*see "Water Resources Map" on page 8*):

- More information about the Dog River is available in the 2009 Dog River Corridor Plan.
- More information about Berlin Pond is available in the 2002 Berlin Pond Watershed Conservation Plan and the 2017 Source Protection Plan Update and elsewhere in this plan (*see "Berlin Conservation and Open Space Map" on page 6*).
- More information about the Winooski River (main stem and Stevens Branch) is available in the 2017 Basin 8 -Winooski River Watershed Water Quality and Aquatic Habitat Assessment Report and the 2012 Winooski River Basin Water Quality Management Plan.

The small streams and brooks in Berlin are tributaries to one of those three features. Most originate and flow primarily through forested areas. Small streams and brooks are highly sensitive to changes in land cover and use within their watersheds. Maintaining or establishing upland forest cover and riparian buffers along stream banks is an effective means to avoid increased downstream flooding, erosion and sedimentation, resulting in reduced water quality (*see "Riparian Buffers" on page 8*).

Ponds larger than 10 acres in area are subject to the Vermont Shoreland Protection Act (Berlin Pond is the only such water body in town). A state permit may be required for development, redevelopment or clearing within 250 feet of the shoreline of Berlin Pond. While Montpelier owns most of the land immediately surrounding Berlin Pond, there are 12 residential parcels and 3 homes within 250 feet of the pond. More information is available from ANR's Shoreland Permitting program.

Wetlands and Vernal Pools

The Vermont Agency of Natural Resources has mapped 567 acres of Class 2 and 446 acres of Class 3 wetlands and approximately two dozen vernal pools in Berlin (*see "Water Resources Map" on page 8*). There are extensive areas in the northeast quadrant with hydric soils, which suggests that there may be wetlands in those areas that have yet to be identified. It is also likely that additional vernal pools exist in the hollows and depressions of the town's forested hillsides.

The Vermont Wetland Rules protect significant wetlands (Class 1 or 2), vernal pools and a buffer zone directly adjacent to them (50' for Class 2 wetlands). Any activity within a significant wetland, vernal pool or buffer requires a state permit, which is only issued if the Agency of Natural Resources determines that the activity will have no undue adverse impacts on wetland or habitat functions. The Wetland Rules do not apply to Class 3 wetlands. Wetlands, including Class 3, may also be subject to federal regulation. More information is available from ANR's Wetlands Program.

Rare, Threatened or Endangered Species

Vermont's Protection of Endangered Species law prohibits the taking, possessing, or transporting of threatened and endangered plants and animals. Vermont Department of Fish and Wildlife reviews development subject to state permitting for impacts on RTE species and significant natural communities. Applicants may be required to complete an environmental assessment on a proposed development site as part of the review and permitting process.

The Vermont Agency of Natural Resources maintains a Natural Heritage Database documenting plant and animal species that are rare, threatened or endangered in Vermont and significant natural communities, which is used for planning, conservation and regulatory purposes (*see "Ecological Resources Map" on page 9*).

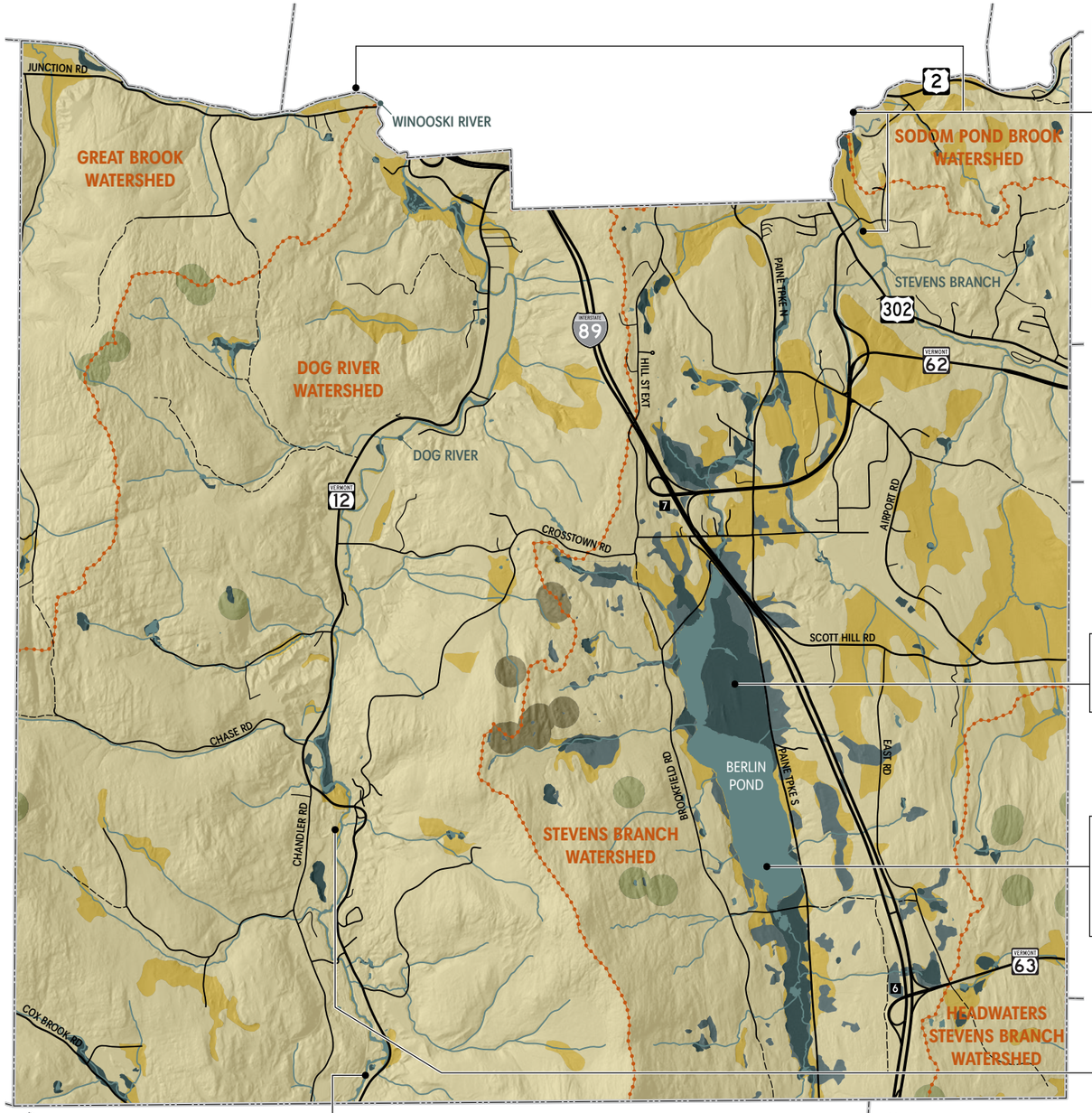
Approximately 15 locations with RTE plant and animal species have been documented in Berlin. The known locations of RTE species generally coincide with public or conserved lands where natural resource inventories have been conducted or with land subject to state or federal permitting where an environmental assessment has been required.

The Natural Heritage Database also includes three significant natural communities in Berlin:

- Northern white cedar swamp at the northeast corner of Berlin Pond.
- Rich northern hardwood forest in the vicinity of the Irish Hill Conservation Area.
- Rich fens (a type of wetland) on private land south of Scott Hill Road.

Berlin has never undertaken a town-wide natural resource inventory, so additional data about potential locations of RTE species or significant natural communities is not available. However, it should be assumed that such resources exist in many areas of town, particularly in the upland forests and in riparian areas.

Water Resources Map



Three segments of the Winooski River flow through Berlin. In two streches, the main stem serves as the town boundary with Middlesex, Montpelier and East Montpelier, and the Steven's Branch runs parallel with Route 302. Originating in Cabot and flowing 90 miles to Lake Champlain, the Winooski River drains more than 1,080 square miles, including some of the most densely developed land in Vermont. As of 2016, the portions of the Winooski River in Berlin were not listed as impaired waters (not meeting water quality standards), but the the Vermont Agency of Natural Resources did consider them 'stressed' or showing some degree of impact from land use activities. If water quality continues to decline and any portion of the river in Berlin was to become impaired, corrective action could be required on the part of private landowners within the watershed.

The most significant mapped wetlands in town are associated with Berlin Pond and Pond Brook, and are largely protected through public ownership.

Berlin Pond as it presently exists has a surface area of approximately 250 acres. It is fed by Pond Brook and the current water level is controlled. The pond is the source of drinking water for Montpelier and a portion of Berlin. As such, access to and recreational use of the pond is heavily restricted in order to prevent contamination of the water supply.

There are five unmapped vernal pools located within the town-owned Dog River Natural Area that support Blue-Spotted, Jefferson and Spotted salamanders. These pools are regularly studied and assessed by the Vermont Agency of Natural Resources.

The Dog River begins near the Roxbury-Warren town line and flows through Roxbury, Northfield and Berlin where it empties into the Winooski River near Junction Road. Route 12 and the railroad parallel the river in Berlin, and as a result it lacks riparian buffers and is cut off from its natural floodplains in many locations. There are also a number of structures constricting the channel and stretches where the river has been channelized and the banks have been armored. Despite these challenges, the Dog River is considered one of the best brown trout streams in Vermont.

SOURCE
2015 VSWI Wetlands, VTANR
2016 County Soil Survey, USDA NRCS
2017 VT Vernal Pool Mapping, VTANR
2013 Watershed Boundaries, USDA NRCS

Riparian Buffers

Preserving and establishing riparian buffers adjacent to surface waters is the most effective way to improve or maintain water quality. Riparian buffers, particularly forested buffers and those along small, upland streams, provide significant benefits. They:

- Reduce erosion;
- Filter sediment, nutrients and pollution;
- Shade and moderate water temperatures;
- Offer wildlife habitat and travel corridors; and
- Store runoff, replenish groundwater and reduce flooding.

While riparian buffers as narrow as 10 feet can improve water quality, a buffer 50 feet or more in width is needed to more fully provide all of the benefits listed above. Watch this video to learn more about how riparian buffers work to stabilize Vermont streams and reduce potential for flooding and erosion during severe storms.

Interested in establishing or improving riparian buffers on your property? Check out the following resources:

- Friends of the Winooski River works on multiple sites throughout the watershed, planting up to 3,000 trees and shrubs in riparian areas each year.
- Winooski Conservation District works with private landowners to install forested riparian buffers and has an annual plant sale each spring that includes trees and shrubs suitable for conservation planting.
- Conservation Reserve Enhancement Program (CREP) offers incentives to farmers who establish riparian buffers.
- Vermont Trees for Streams Resource Guide

Forest Blocks

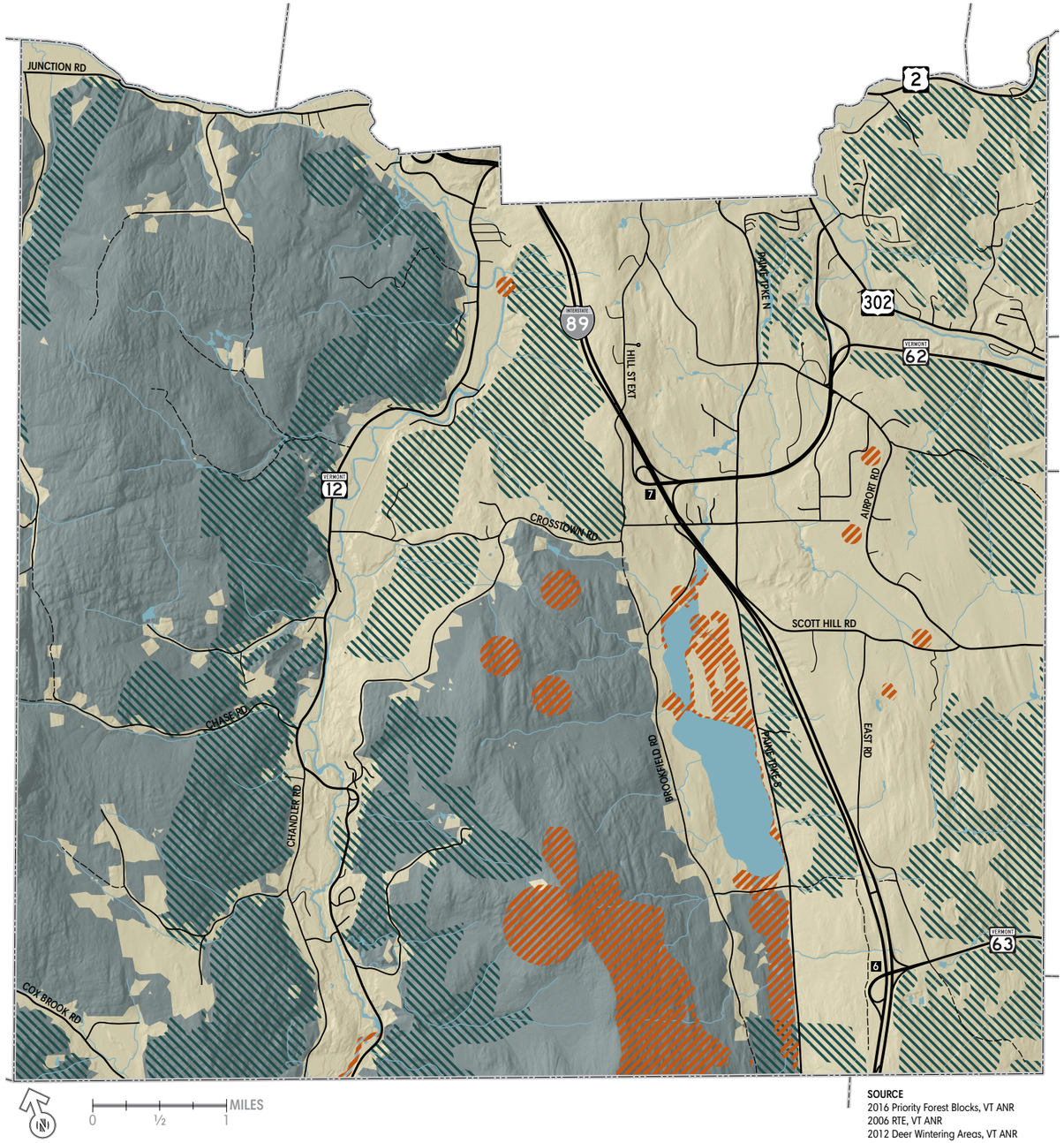
Maintaining large blocks of interior forest is a simple biodiversity conservation strategy that can help sustain viable populations of native plant and animal species for future generations. These blocks are large enough to withstand and recover from catastrophic events like storms or wildfires, to support breeding populations, to provide habitat for species sensitive to human disturbance, and to include a variety of landscape features and habitat types.

To learn more about conserving forest on your property, check out the following resources:

- Vermont Coverts helps landowners meet forest management goals and enhance diverse wildlife habitat and healthy ecosystems.
- Foresters for the Birds helps landowners integrate the practices of timber and songbird habitat management.
- Managing your Woodlands (VT Dep't of Forests, Parks and Recreation)
- Community Strategies for Vermont's Forests and Wildlife: A Guide to Local Action
- A Landowner's Guide to Wildlife Habitat Management for Lands in Vermont (available for purchase from the VT Dep't of Fish and Wildlife).

PHOTO: JIM DONOVAN

Ecological Resources Map



SOURCE
2016 Priority Forest Blocks, VT ANR
2006 RTE, VT ANR
2012 Deer Wintering Areas, VT ANR

KEY

- Priority forest blocks
- Rare, threatened & endangered species
- Deer wintering areas

Wildlife Habitat and Travel Corridors

The Vermont Agency of Natural Resources has mapped deer wintering areas in Berlin (*see "Ecological Resources Map" on page 9*). The Department of Fish and Wildlife will review proposed development subject to state permitting for impacts on deer wintering areas and may require conservation or mitigation so that there will be no net loss of habitat.

Due to the variable degree of accuracy of the various statewide data sets, mapped habitat resources should be confirmed and more precisely delineated based on current, accurate field data before being applied to an individual property for regulatory purposes.

Brownfields and Hazardous Sites

Brownfields are previously developed sites that are or have the potential to be polluted by hazardous materials. The fear of legal liability for pre-existing environmental contamination is an impediment to redeveloping brownfields. Owners of contaminated property may be legally liable for cleanup regardless of whether or not they caused the contamination. There are programs in place to assist the town and property owners with cleaning-up brownfields. More information is available from ANR's Brownfields Program. As of 2017, there were no identified brownfield sites in Berlin.

Berlin hosts many businesses that store hazardous materials (materials that have properties or contain chemicals which make them dangerous or capable of having harmful effects on public health or on the environment) on-site for their own use or for sale. The Vermont Agency of Natural Resources maintains a spill database that provides the public with information about releases of hazardous materials, potential contamination and remediation actions.

Due to the potential for water contamination, transport and storage of hazardous materials is of particular concern within the Berlin Pond watershed (*see "Berlin Conservation and Open Space Map" on page 6*), the source protection areas for the town wells (*see "Utilities and Facilities Map" on page 21*), and floodplains and river corridors (*see "Floodplain and River Corridor Map" on page 29*). Storage of certain materials in proximity to the airport is also restricted by state and federal law. Berlin's Local Mitigation Plan identifies the transport of hazardous materials as a potential threat and points to the Montpelier Junction area as being particularly vulnerable due to the proximity to surface waters, industrial land uses that include a propane terminal, and the railroad siding where railcars carrying propane or other hazardous materials are stored.

2C. Cultural Resources

Archaeological Resources

There are no designated archaeological landmarks or publicly identified archaeological sites in Berlin. Potential archaeological resources that could be located in Berlin include artifacts and sites providing evidence of thousands of years of Paleo-Indian and Native American activity prior to European settlement, and the 250 years of agricultural or industrial activities that followed.

The Vermont Division for Historic Preservation can assist in determining whether there are any known archaeological resources or potential for archaeological resources in a given area. Proximity to surface waters, particularly major rivers and lakes, is a strong indicator of potential archaeological sensitivity.

Other than burial sites (which are protected by state law), archaeological resources on private land belong to and are solely under the control of the property owner. It is only when development subject to state or federal permits, or undertaken with state or federal funding, is proposed that the state may impose requirements to investigate, document and/or preserve archaeological resources on private land.

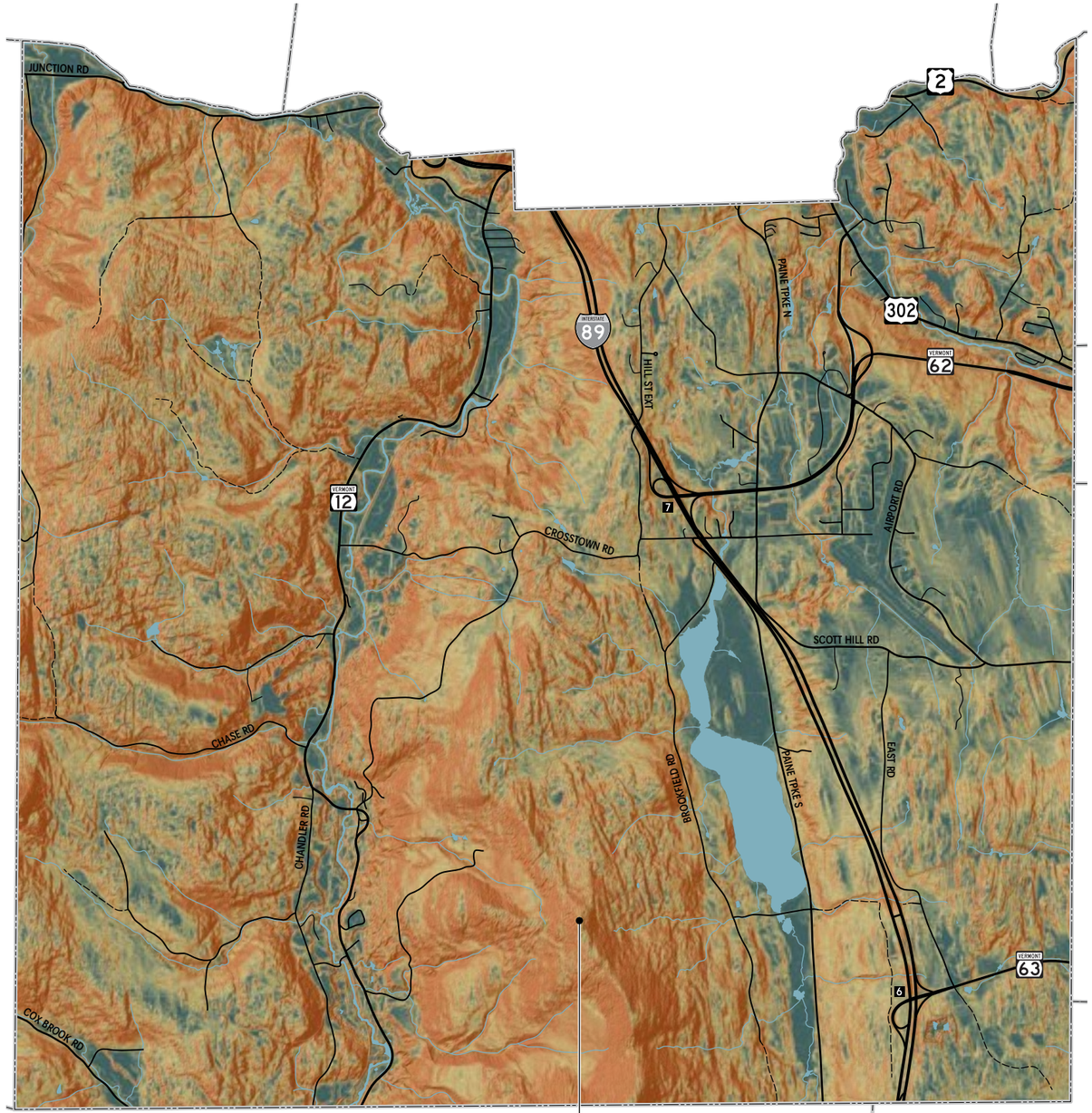
Historic Resources

The Vermont Division for Historic Preservation conducted a Historic Sites and Structures Survey in Berlin in the 1980s, which resulted in more than 50 structures being listed on the State Register of Historic Places in 1990 (see Berlin State Register Nomination Forms for detailed information on each historic site or structure). This survey needs to be updated to determine whether the listed structures still exist and remain eligible for inclusion on the State Register, and whether there are additional sites and structures that have become eligible since the original survey that should be nominated to the State Register. Property owners interested in learning more about having property listed on the State Register can review two fact sheets prepared by the Division for Historic Preservation – Criteria for Evaluation and Nominating Historic Resources to the State Register.

There are two structures in Berlin on the National Register of Historic Places: Bridge #27 (Lover's Lane Bridge) listed in 2005, and the Chauncey B. Leonard House (corner of Shed Road and Crosstown Road) listed in 1995 (*see "Structures Listed on the National Register" on page 11*).

Being listed on either the State or National Register does not, in itself, impose any obligation on the property owner. It is only when development subject to state

Slope Map



Steep Slopes

Slope is one of the factors that needs to be considered when determining the suitability of land for future use or development. Berlin's landscape is characterized by rolling to steep terrain, which presents challenges for land development. Protecting steep slopes preserves the natural scenic beauty and rural character intrinsic to many areas of town.

Potential ecological consequences of clearing, disturbing and building on steep slopes can include increased erosion, landslides, sedimentation and flooding. It is more complicated to develop, install septic systems and build on steep slopes, resulting in higher development and housing costs.

Development on steep slopes, particularly in remote areas, is also more expensive for the town and others to service. It is more difficult for emergency, utility and service vehicles to access development on steep hillsides. Steep roads and driveways increase the likelihood of car accidents. Steep roads and driveways are more likely to suffer wash-outs or other damage in severe storms.

The land use recommendations of this plan call for maintaining forest cover and a low density of development in areas characterized by steep to very steep slopes.

USDA Natural Resource Conservation District classifies slopes and their suitability for development as follows:

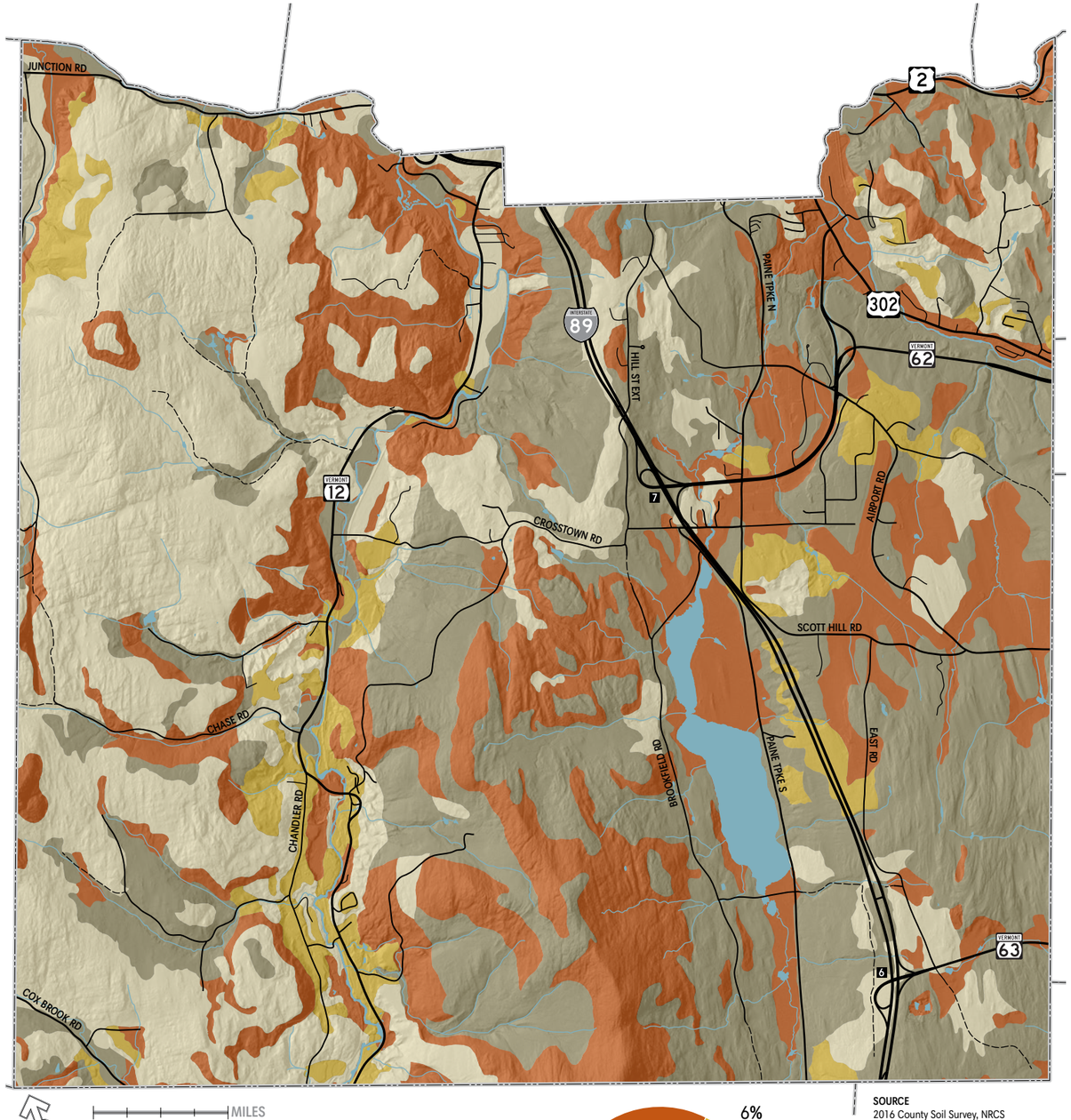
up to 3%	**nearly level** subject to flooding or poor drainage
>3% to 8%	**gently sloping or undulating** generally suitable for development
>8% to 15%	**strongly sloping or rolling** suitable for development with appropriate stormwater management practices
>15% to 20%	**moderately steep, hilly** may be developed with professional design and engineering
>20% to 30%	**steep** poorly suited for development, minimize land clearing and disturbance
>30%	**very steep** not suitable for development, avoid land clearing and disturbance

Structures Listed on the National Register

The Chauncey B. Leonard house (above) on the corner of Crosstown Road and Shed Road was built in 1845 and significantly renovated in 1892.

Lover's Lane Bridge (below) is a rare example of a Warren pony truss bridge. It was built in 1918 spanning the Dog River and joining Chandler Road to Route 12.

Septic Suitability Map



or federal permits, or undertaken with state or federal funding, is proposed that the state may require specific actions to preserve a historic resource. For example, development subject to Act 250 must demonstrate that there will be no undue adverse impact to historic resources. Property owners can learn more about how best to preserve or rehabilitate a historic structure from the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings.

Berlin has an active Historical Society that maintains a collection of historic materials and databases, and can provide more information about town history and historic resources.

Scenic Resources

Berlin has not conducted a scenic resource or road inventory. It is evident from the many public comments at meetings and surveys over the years that residents value the scenic character of the rural areas of Berlin such as: views over farmland in the Dog River Valley to the wooded hillsides and ridgelines beyond; views of Berlin Pond and the surrounding hills; and the expansive views of the Green Mountains from the interstate and elsewhere in town. Approximately 85% of respondents to the 2017 community survey rated the ability to enjoy scenic views in Berlin as excellent or good.

Recreational Resources

The *Berlin Conservation and Open Space Map (page 6)* identifies the conserved and public lands available for recreational use in Berlin and discusses recreational use of Berlin Pond. Other public recreation facilities in Berlin include the playground and ballfields at the elementary school, and the ice rink at the municipal building. More than 80% of respondents to the 2017 community survey rated their ability to enjoy nature and outdoor recreation in Berlin as excellent or good.

Walking and biking are popular recreational activities in Berlin, but nearly all roads in town lack sidewalks, bike lanes or paths, and/or adequate shoulders to safely accommodate pedestrians and bicyclists (*see "Bicycle and Pedestrian Network" on page 20*). More than 60% of respondents to the 2017 community survey rated the safety of walking or biking on town roads as poor or fair.

Berlin does not have a recreational department or offer recreation programs to residents. There was a Recreation Board as of 2018, but it was inactive due to a lack of members. The Conservation Commission was fulfilling the duties of the Recreation Board, which included organizing the town's winter skating rink. Town

residents also have access to recreation programs and facilities in Montpelier and Barre City, but are typically charged higher non-resident rates for those services. The town does offset the cost of swim lessons for children living in Berlin.

Many private landowners in Berlin allow people to access their property for recreational uses. Vermont law allows people to hunt, fish, and walk on private property without permission unless the land is legally posted. Permission is required before people may ride motorized vehicles or trap animals on private property. The state's Landowner Liability law protects property owners who allow recreational use on their land without charging a fee from liability for property damage or personal injury. Property owners are protected under this law irrespective of whether the land is posted.

Recreational access to private land if often lost as large tracts of rural land are subdivded and developed into smaller house lots. Berlin's land use regulations do not require owners to protect existing trails or other recreational access on property being subdivided or developed, but that may be required by the state if the project requires an Act 250 permit.

2D. Future Land Use

Land Capability

A fundamental principle of land use planning is to guide development towards the land best suited to accommodate the proposed use and away from unsuitable land. Some of the factors affecting land capability include:

- Steep slopes are poorly suited for development (*see "Steep Slopes" on page 10*). Large areas of Berlin are characterized by steep slopes (*see "Slope Map" on page 10*).
- Development in the rural areas of Berlin outside the northeast quadrant will be dependent on on-site septic systems for wastewater disposal (*see "Wastewater Disposal Infrastructure" on page 22*). Many areas of Berlin have soils that are poorly suited for on-site wastewater systems (*see "Septic Suitability Map" on page 11*).
- Riparian areas, including floodplains and river corridors, pose hazards for development (*see "8. Flood Resilience" on page 29*). Historically, development in Berlin has been located close to rivers and streams. Looking to the future, this plan recommends siting development further away from surface waters.
- Vast areas of Berlin are remote and not currently accessible from maintained public roads. The cost of providing infrastructure and services to development in these areas would be significantly higher than for those located in and near developed areas of town or along main roads. Extending roads into currently inaccessible areas would fragment forest blocks and increase impervious surface coverage along with the potential for erosion, sedimentation and downstream flooding.

Future Land Use Map

The *Future Land Use Map (page 13)* is intended to illustrate Berlin's desired future land use pattern, which can be broadly summarized as:

- Development of a town center anchored at the Berlin Mall site;
- Preservation and revitalization of the historic centers of Berlin Corners and Riverton;
- Continued build out of the business park near the airport with light industrial and office uses;
- Revitalization and infill of commercial, mixed use and residential areas on previously developed and suitable undeveloped land in the northeast quadrant;
- Preservation of rural character outside the northeast quadrant;
- Continued use of rural land primarily for agriculture and forestry; and
- Protection and conservation of Berlin Pond and surrounding land, and the Irish Hill ridgeline.

The *Future Land Use Map (page 13)* also divides the town into a series of land use planning areas in the northeast quadrant and rural areas of town. More specific guidance on the desired future land use for each land use planning area is presented in *Future Land Use Recommendations (page 17)*. The land use recommendations use the maintain-evolve-transform approach described in *Maintain | Evolve | Transform (page 13)*. The recommendations are intended to be implemented through the town's land use regulations.

In addition to those land use recommendations and this plan's goals, objectives, policies and actions, the town's land use regulations should be consulted and considered whenever future land use in Berlin will be affected by a regulatory, judicial or legislative decision.

New Town Center

Historically, Berlin was a rural town with several small hamlets but without a traditional center. Residents accessed goods and services in the nearby urban and village centers of Montpelier, Barre City, Northfield and Middlesex. Since the construction of Interstate 89, Berlin has grown and the land use pattern in the northeast quadrant has changed dramatically. Yet, the town still lacks an identifiable center. It is clear from public comments at meetings and on surveys over the years that residents want such a center to create a sense of community, enhance the quality of life, and support economic development in Berlin.

As a result, Berlin has been planning for a town center since the late 1990s. Following the 2004 Berlin Mall Village Center Study and 2007 Draft Conceptual Plan for the Town Center, the town amended its zoning regulations to establish a town center district. The envisioned redevelopment did not materialize, largely as a result of the recession in the latter half of the 2000s. In the mid-2010s, however, interest in the town center project re-emerged. The town has proposed further zoning changes to allow for development of a compact, walkable, mixed-use center anchored at the Berlin Mall site that would:

- Reinforce the area as a regional service center;
- Offer higher-density housing;
- Reduce the area devoted to surface parking; and
- Infill undeveloped land, and underutilized parcels and parking lots.

The potential approach to developing Berlin's town center is further described in A New Town Center for Berlin, a presentation made on behalf of Berlin Mall LLC (the mall owner) to the Selectboard in 2016. To further their shared goals, the Town of Berlin and Berlin Mall LLC have agreed to seek a New Town Center designation for the area from the state (*see "New Town Center Map" on page 14*). State designation would offer both the town and property owners within the designated area benefits including:

- Berlin would be more competitive when seeking grant funding for projects benefiting the new town center.
- The town could create a special taxing district for the purposes of financing capital and operating costs associated with infrastructure or other public improvements in the designated area.
- Land within and near the designated area would be eligible for the state's Neighborhood Development Area program.
- The number of housing units that could be built on a property without requiring an Act 250 permit would increase, and proposed

What does Berlin need to change?

Residents were asked that question on the 2017 Community Survey and responses included:

Needs more community activities and a town center with a post office. It does not feel like an actual town.

Identity with a zip code. Attract more residents with new home construction. Develop town center and continue to attract good commercial growth.

I would like to see Berlin creating villages or community centers. The proposed zoning seems to work towards this. Riverton should be a community center and the Mall would be another good one.

We need a geographic town center that is walkable and contains local shopping and dining options.

Berlin needs a cohesive identity, a core. It is not just a place to pass through or a suburb of Barre and Montpelier.

PHOTO: VERMONT DEPARTMENT OF TOURISM AND MARKETING

Maintain | Evolve | Transform

The Future Land Use Recommendations (page 17) are organized as follows:

- **Recommendations to maintain** are intended to preserve or strengthen the element described with limited change from the existing or historic condition.
- **Recommendations to evolve** are intended to promote incremental change that builds on an existing strength or asset.
- **Recommendations to transform** are intended to lead to substantial change that will alter the future character or use of an area.

development may be eligible for other Act 250 relief as well.

Village Centers

RIVERTON. Riverton or West Berlin is a historic hamlet along the Dog River on Route 12 that developed as a small industrial center due to the availability of water power and later access to the railroad. Town residents have expressed support for revitalizing this area, which formerly supported more businesses, homes and civic buildings than it does today. The town has proposed creating a new mixed-use zoning district for Riverton that would recognize and maintain its historic settlement pattern.

BERLIN CORNERS. Berlin Corners is a historic hamlet that formed around the intersection of Crosstown Road (the only road connecting the eastern and western sides of town) and Paine Turnpike. While it has been overshadowed by development around Exit 7 and the airport, it continues in its role as a civic center. Town residents have expressed an interest in retaining the historic scale and character of Berlin Corners, and in preventing the commercial development near Exit 7 from extending further south along Paine Turnpike. The town has proposed zoning changes that would allow for additional housing, but that would limit the scale of commercial activity in Berlin Corners.

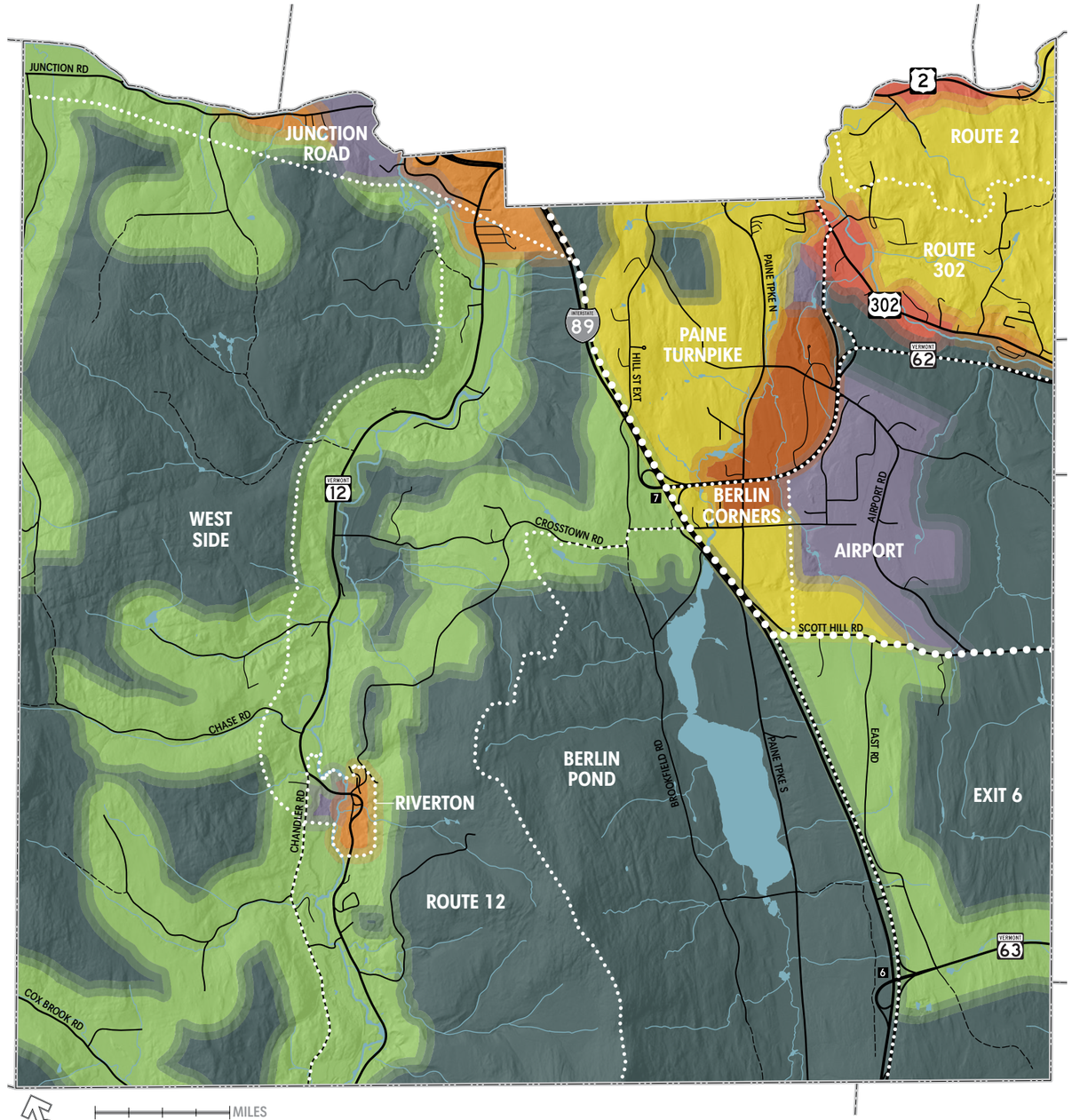
DESIGNATION. The town plans to seek Village Center designations for these two historic hamlets from the state (*see "Village Centers Map" on page 15*). Designation would support the town's land use policies related to maintaining the historic scale and pattern of development, encouraging private investment in historic buildings, and promoting infill and improving the walkability of the town's existing and planned centers. State designation would offer both the town and property owners within the designated area benefits including:

- Owners of income-producing historic buildings could access tax credits for eligible improvements.
- Land within and near village centers would be eligible for the state's Neighborhood Development Area program.
- Berlin would be more competitive when seeking grant funding for projects in the village centers.

Forest Blocks and Habitat Connectors

Town plans are required by state statute to identify forest blocks and habitat connectors and to plan for land development in those areas to minimize forest fragmentation and promote forest health and ecological function. The Vermont Agency of Natural Resources

Future Land Use Map



This map divides the town into a series of land use planning areas as indicated by the white dotted lines and labels. The northeast quadrant boundary is shown with the heavier white dotted line along I-89 and Scott Hill Road. Generalized land use types and densities are indicated by the underlying colors. More detailed land use recommendations for each area are found on pages 16-18 of the plan. The specific uses and densities of development allowed are established in the Berlin Land Use and Development Regulations.

has mapped two priority forest blocks in Berlin (*see "Ecological Resources Map" on page 9*).

The impact of proposed development on priority forest blocks will be considered during Berlin regulatory reviews and state regulatory processes such as Act 250. Due to the scale and degree of accuracy of the state maps, the boundaries of priority forest blocks should be more precisely delineated based on current, accurate field data before being applied to an individual property for regulatory purposes.

The state-mapped forest blocks generally align with the areas designated as conservation, open space or working lands in this plan (*see "Future Land Use Map" on page 13*). A large portion of the forest block between the Dog River valley and Berlin Pond is conserved or public land. Much of the land in both mapped forest blocks was enrolled in the Current Use Program as of 2016 (*see "Berlin Conservation and Open Space Map" on page 6*).

2E. Compatibility

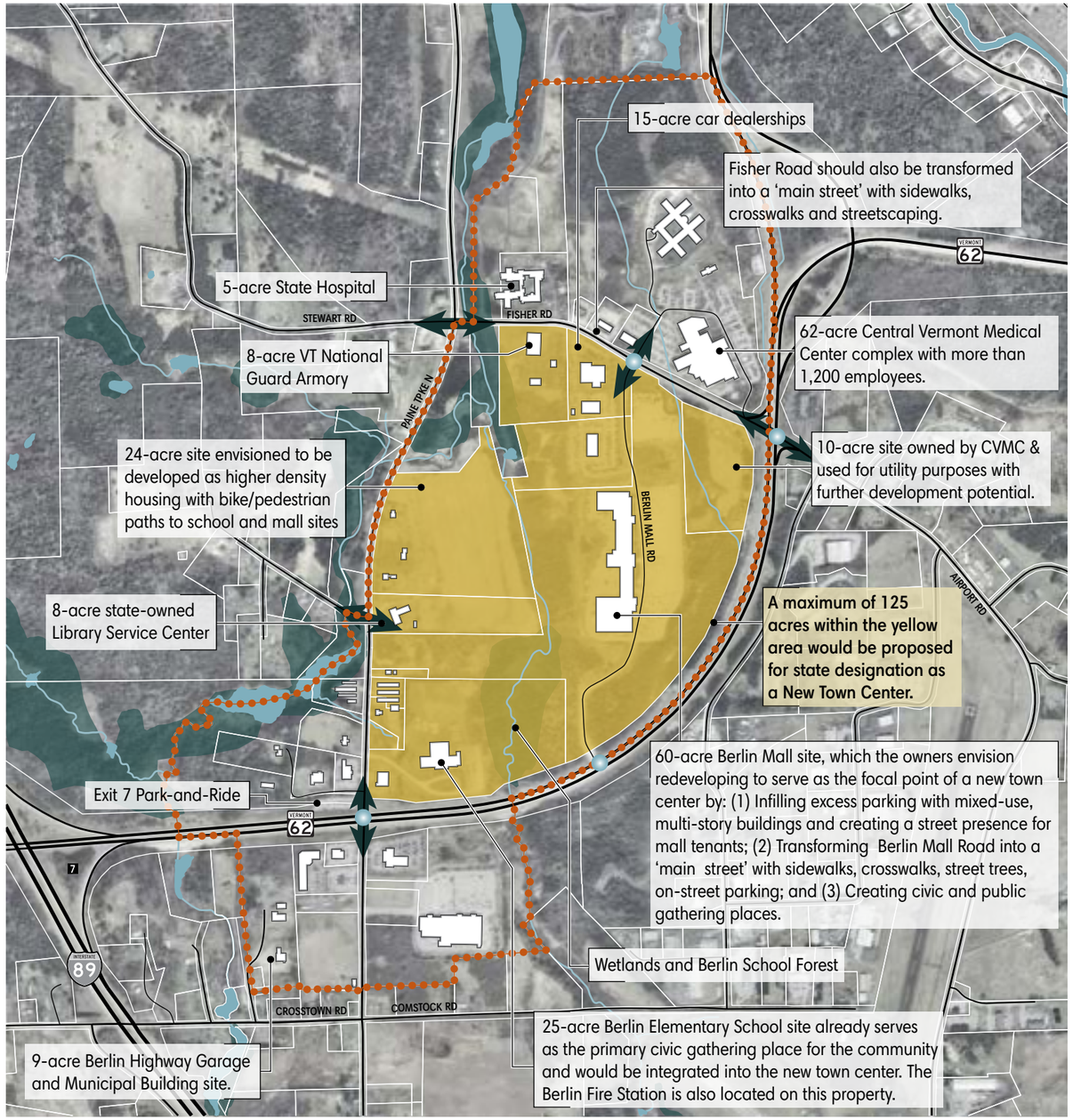
Berlin is part of the Central Vermont region and its land use and development trends are both influenced by and affect the land use and development trends of neighboring municipalities and the region as a whole. Many planning issues such as transportation improvements along the major highway corridors - traffic calming, access management, transit and bike/ped improvements - will need to be addressed jointly by Montpelier, Berlin, and Barre Town and Barre City. Similarly, property owners on both sides of the Winooski share risks associated with flooding and related contamination due to the presence of a variety of industrial uses within or adjacent to the floodplain that can only be mitigated through coordinated action.

Neighboring Municipalities

Berlin's future land use plan is largely compatible with plans in neighboring municipalities:

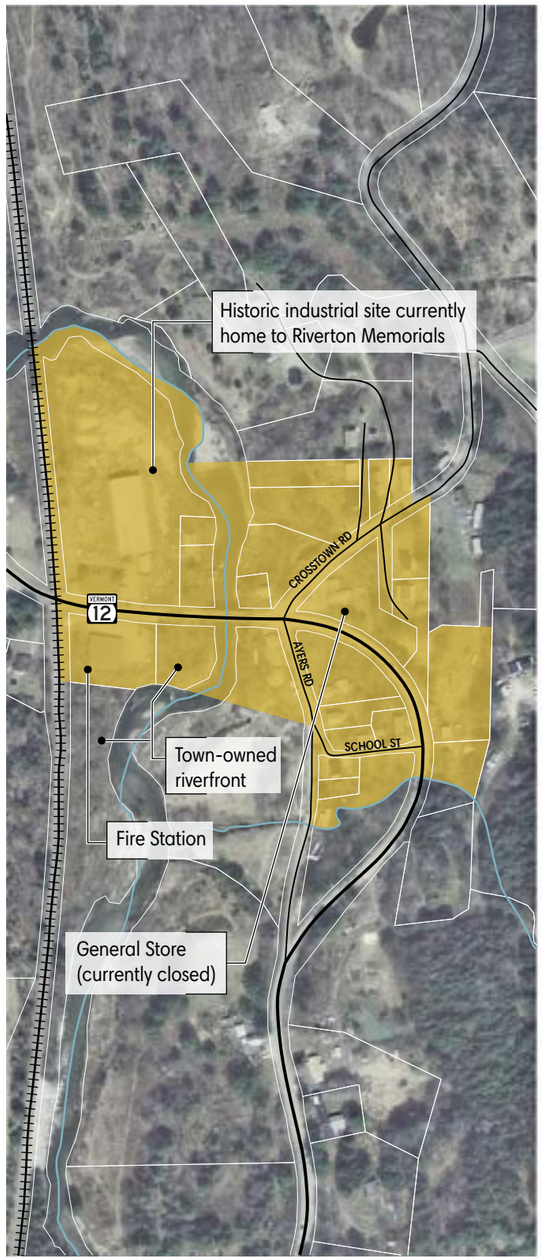
- Montpelier's Master Plan does not express a clear vision for future land use in its 'eastern gateway' along the Route 2 and 302 corridors and 'western gateway' near Exit 8. The plan notes that these areas have developed in an unplanned manner, but it does not recommend specific strategies for evolving or transforming the development pattern.
- Barre City's and Berlin's future land use plans along the shared boundary are very similar. Barre City envisions neighborhood commercial, mixed use and residential uses along the Route 302 corridor, and conservation and open space uses along and south of the Route 62 corridor.

New Town Center Map

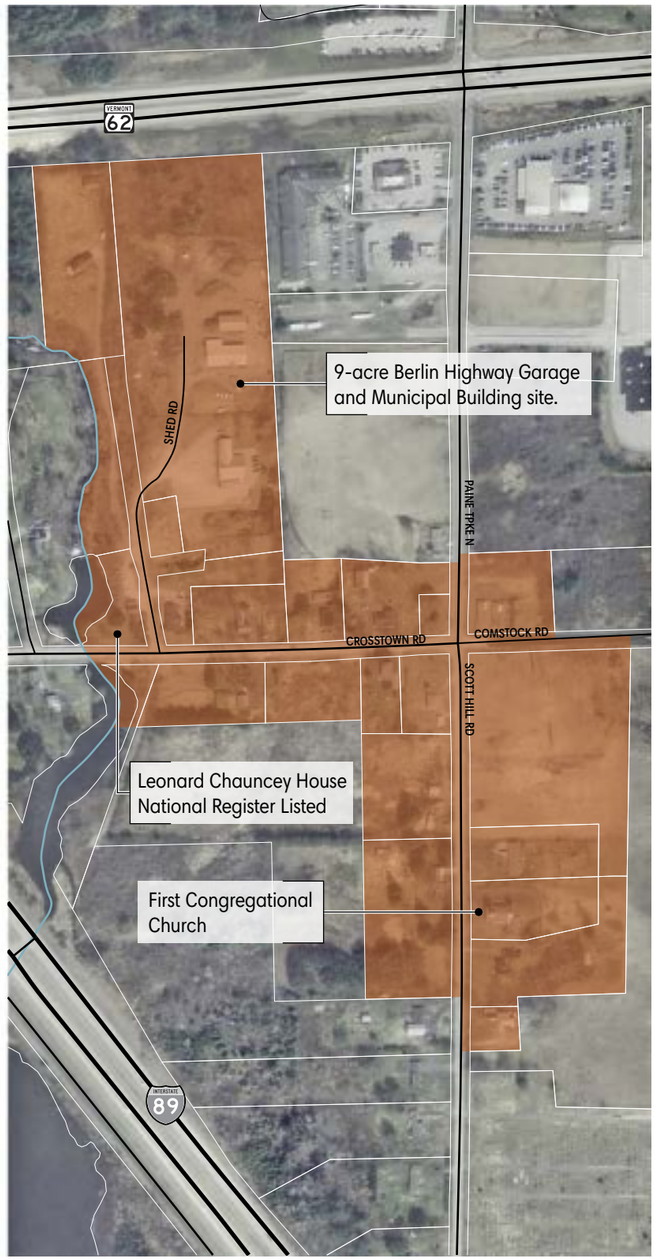


Berlin has been planning for a pedestrian-friendly town center anchored at the Berlin Mall for more than a decade. The town historically had several small hamlets but never had a traditional downtown / central business district. The mall site has ample opportunity for mixed-use infill and redevelopment with multi-story buildings built at or close to the edge of the sidewalk and curbed streets with on-street parking. Adjacent parcels are well-suited for higher-density housing and the area is already home to the Berlin Elementary School, the town's primary civic gathering place and focal point. The area is or can readily and efficiently be served by water, sewer, stormwater, transportation, energy and communications infrastructure. It is located adjacent to CVMC – a major employer and traffic generator.

Village Centers Map



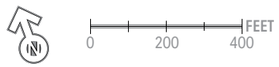
RIVERTON



BERLIN CORNERS

KEY

- Proposed Riverton Village Center Boundary (20 acres)
- Proposed Berlin Corners Village Center Boundary (38 acres)



- Barre Town's future land use plan along the town line is very similar to Berlin's – medium to high density residential uses north of Barre City and low density residential and conservation uses south of Barre City.
- Northfield's village center is approximately two miles south of the town line on Route 12. It serves as employment and service center for the southwestern portion of Berlin. Northfield's town plan calls for moderate to high density residential uses along the Route 12 corridor and low density residential uses along the remainder of the shared border with Berlin, which reflects the existing development pattern and is compatible with this future land use plan.
- Moretown and Berlin share a long border along the western side of town characterized by steep, wooded terrain. Roads travel through several narrow valleys along this border with more recent residential development in these areas. Both town plans call for low density residential and open space uses in this area.
- The Middlesex Town Plan does not specify what areas of town should be used for particular purposes, rather it defers to the zoning regulations. Middlesex has zoned the land across the river from Berlin for industrial use.
- Williamstown Town Plan calls for low-density rural uses along the town boundary with Berlin. The Williamstown plan discourages commercial/industrial development near Exit 6, which could negatively impact the economic viability of Williamstown Village. The policies of this plan and the proposed zoning changes at Exit 6 also seek to guide commercial/industrial development away from Exit 6 and towards the northeast quadrant.
- The Winooski River and steep terrain separate East Montpelier and Berlin. East Montpelier's future land use plan calls for the small area along the town boundary with Berlin to remain largely undeveloped resource land.

Central Vermont Region

The overall land use and development pattern called for in this plan is consistent with the pattern envisioned in the Central Vermont Regional Plan's future land use policies and map. The regional map indicates support for Berlin's planned town center, industrial and mixed-use commercial areas in the northeast quadrant, and for maintaining rural character in the outlying areas of town.

Future Land Use Recommendations

Northeast Quadrant

	DESCRIPTION	MAINTAIN	EVOLVE	TRANSFORM
PAINE TURNPIKE	The Paine Turnpike area is bounded by Interstate 89, Route 62 and the Berlin State Highway. It includes the Berlin Mall, Central Vermont Medical Center and adjoining development. There is a large extraction operation to the north, and rural residential and undeveloped land to the west.	1. Maintain the civic functions (school and fire station) already located in this area and seek opportunities to site additional public uses and gathering places within the town center. 2. Maintain a buffer between the existing extraction operation north of Fisher Road and surrounding development.	3. Evolve the development pattern from a suburban, auto-oriented commercial and service center to a more urban, pedestrian-oriented, mixed-use town center. 4. Evolve the built form through: infill development with multi-story, mixed-use buildings; more efficient use of land by reducing, redesigning and relocating surface parking; and improved walkability with sidewalks, crosswalks, paths, streetscaping, greens and pocket parks. 5. Evolve the mix of uses to create a well-defined center for Berlin where people live, work, shop and play. 6. Evolve and expand the medical campus anchored by CVMC to enhance the availability of healthcare services in the region, attract new businesses and increase employment in Berlin.	7. Transform suitable undeveloped land into high density residential neighborhoods that offer a range of housing choices. 8. Transform existing roads into complete streets so that people can safely walk or bike, including crossing Route 62 to link this area with Berlin Corners and the airport business park. 9. Transform the existing intersections with Route 62 to expand their capacity as needed to accommodate planned development, reduce congestion and maintain traffic flow, and better accommodate pedestrians and bicyclists.
BERLIN CORNERS	The Berlin Corners area is bounded by Interstate 89, Route 62 and the airport. The area around the intersection of Paine Turnpike, Scott Hill Road, Crosstown Road and Comstock Road is one of the town's historic hamlets and continues to function as a civic center. North from the intersection to Route 62, the Paine Turnpike North corridor has become a commercial strip with both regional retail and traveler services associated with Exit 7.	1. Maintain the historic character and traditional village development pattern of the area around and south from the Crosstown Road intersection. 2. Maintain the traveler service function of the area close to Exit 7 without extending high-traffic commercial uses further south along Paine Turnpike. 3. Maintain the existing traffic pattern so that most truck traffic associated with the airport business park does not travel through this area.	4. Evolve the development pattern, character and built form of the corridor from Route 62 to the Crosstown Road intersection to become a pedestrian-friendly commercial node serving both travelers and locals with distinctive architecture, attractive landscaping, well-designed signs, and other quality site design features.	5. Transform Paine Turnpike and Scott Hill Road into complete streets so that people can safely walk or bike, including crossing Route 62 to the proposed new town center and going east to the airport business park.
AIRPORT	This area includes the Edward F. Knapp State Airport (see "Airport" on page 20) and lands to the east between Route 62 and Scott Hill Road. A business park with a mix of office and industrial uses has developed and continues to expand around the airport. There is ample open land to accommodate future growth of the business park.	1. Maintain and improve the airport as needed so that it continues to support economic development in the region. 2. Maintain a pattern of land use and development near the airport and along the flight paths that does not adversely impact or conflict with airport operations. 3. Maintain and grow the business park around the airport as a prime location for light industry, office, shipping and professional service uses in the region. 4. Maintain and protect the groundwater recharge area for the town wells and guard against contamination of the water supply.	5. Evolve and upgrade the infrastructure serving the airport business park as needed for the area to retain and attract high-quality firms and jobs. 6. Evolve and enhance the character of the airport business park with attractive streetscaping, landscaping and screening, signage and other site design elements to retain and attract investment and job growth by high-quality firms. 7. Evolve and grow the aviation services available at the airport, including passenger air service.	8. Transform existing roads to serve truck traffic, safely accommodate pedestrians and bicyclists, avoid congestion, and minimize traffic and trucking impacts on the Berlin Corners area.
ROUTE 302	The Route 302 corridor area is bounded by Route 62 to the south and the ridgeline that separates Route 302 from Route 2 to the north. Route 302 has developed as an auto-oriented, highway commercial strip with regional-scale retail uses that serve the larger Central Vermont market. The eastern end of the corridor towards Barre City retains a more residential character with a mix of homes and smaller scale businesses. The Partridge Farms development, which accounts for much of the new housing built in Berlin in recent years, is located at the far western end of the corridor near Montpelier. Suitable land along the highway is largely developed, but there is opportunity for more efficient use and infill development of previously developed sites.	1. Maintain this area as a prime location for retail and service uses serving the Central Vermont region, particularly uses that are not appropriate in a downtown setting due to their scale, intensity or site needs.	2. Evolve the development pattern from a suburban, auto-oriented commercial strip to a more attractive and walkable retail district through traffic calming and redevelopment with high-quality building, site and sign design. 3. Evolve the built form through: infill development; more efficient use of land by reducing, redesigning and relocating surface parking; traffic calming and cross access between properties; and improved walkability. 4. Evolve the siting and design of buildings and other development within the flood hazard area to reduce potential risk to life and property, and improve resiliency.	5. Transform suitable underutilized or undeveloped land off the highway into high density residential neighborhoods that offer a range of housing choices. 6. Transform the river corridor by relocating high-risk structures out of the floodplain, particularly mobile homes, storage tanks, and critical facilities. 7. Transform the auto-oriented character of the Route 302 corridor by completing the Central Vermont Regional Path linking this area to downtown Montpelier and Barre City. 8. Transform access to the Partridge Farm development to improve flood resiliency and emergency response.

Future Land Use Recommendations

Northeast Quadrant

	DESCRIPTION	MAINTAIN	EVOLVE	TRANSFORM
ROUTE 2	The Route 2 corridor area is bounded by the Winooski River to the north and the ridgeline that separates Route 2 from Route 302 to the south.	1. Maintain the eastern portion of the corridor as open space. Generally, the remaining undeveloped land along the corridor is poorly suited for development because of the lack of depth of buildable land along the highway, floodplains, and/or steep terrain. 2. Maintain the existing scale and intensity of commercial development along the Route 2 corridor.	3. Evolve the existing development pattern along Route 2 to improve access management through aligning, narrowing and/or eliminating curb cuts. 4. Evolve the siting and design of existing development within the flood hazard area to reduce potential risk to life and property, and improve resiliency.	5. Transform suitable underutilized or undeveloped land off Marvin and Goodnow roads into moderate density residential neighborhoods.

PHOTO: TOBY TALBOT

Future Land Use Recommendations

Rural Berlin

	DESCRIPTION	MAINTAIN	EVOLVE	TRANSFORM
JUNCTION ROAD	The Montpelier-Berlin Train Station anchors an industrial area along the eastern end of Junction Road that also extends across the river into neighboring Middlesex and Montpelier. West of the rail line, industrial uses give way to a mix of residential properties and small businesses. A series of transmission lines join at the substation on Nelson Drive, where there is also a solar facility. All the land between Junction Road and the Winooski is floodplain and/or river corridor, as is the land along the Dog River (see "Floodplain and River Corridor Map" on page 29).	1. Maintain the existing pattern of low-density rural residential properties in the western portion of the area. Generally, the land in this area is poorly suited for additional residential development because of: the Winooski and Dog River floodplains and river corridors; established railyard, industrial and business uses, utility corridors and infrastructure; and steep slopes.	2. Evolve the mix of uses in the eastern portion of the area towards industrial and away from residential to avoid future and mitigate existing conflicts.	3. Transform open space not suitable for development for uses such as flood storage or renewable energy production.
BERLIN POND	The immediate shorelands around Berlin Pond are almost entirely owned by the City of Montpelier (see "Berlin Conservation and Open Space Map" on page 6 and see "Surface Waters and Riparian Areas" on page 7). The landscape along Brookfield Road and Paine Turnpike South, which ring the pond, retains an agricultural character but is largely converted to rural residential use. Where the steeper terrain comes close to the road, the land is forested and largely undeveloped. While recreational use of the pond is strictly controlled and limited, the roads around the pond are popular places for walking, biking and nature observation. The Irish Hill Conservation Area west of Brookfield Road is also a destination for trail-based recreation.	1. Maintain the existing pattern and density of rural residential development. 2. Maintain forest cover in the upland portions of the watershed to protect wildlife habitat, water quality and scenic character. 3. Maintain the scenic, agricultural character through ongoing small-scale farming (hobby farms, homesteading, keeping horses, etc.) and preserving existing fields and meadows.	4. Evolve and expand the non-motorized trail network on public land to interconnect existing trail systems. 5. Evolve the land use and vegetative cover in the Berlin Pond watershed to provide improved riparian buffers, stabilize the shoreline and streambanks, filter run-off and remove invasive species.	6. Transform the Berlin Pond, its shorelands and surrounding roads into a low-impact recreation destination while ensuring such activities are commensurate with the use of the pond as a public water supply and prioritizing the watershed's natural resource values. Should that use terminate, all efforts should be made to preserve public use and access to the pond and its shorelands for low-impact, non-motorized recreation.
RIVERTON	Riverton is a historic hamlet along the Dog River on Route 12 that developed as a small industrial center. Some industrial and commercial activity remains, but the area is now predominately residential. It retains its historic settlement pattern – a small cluster of buildings on small lots distinctive from the agricultural pattern typical along most of the Route 12 corridor.	1. Maintain the historic character and traditional village development pattern of the area. 2. Maintain industrial use at a scale and intensity compatible with Riverton's historic character.	3. Evolve the mix of uses to include additional small businesses or civic functions as formerly existed in Riverton. 4. Evolve the design and function of Route 12 to slow and calm traffic in recognition of the change in land use and the built environment within the hamlet.	

Future Land Use Recommendations

Rural Berlin

	DESCRIPTION	MAINTAIN	EVOLVE	TRANSFORM
ROUTE 12	Route 12 travels through the Dog River valley, which remains predominately agricultural in character. North of Riverton, where the valley floor is broader, a substantial amount of farmland remains in productive use. South of Riverton, the valley narrows and there are more homes tucked into the forested hillsides. There are some small businesses scattered along the Route 12 corridor, most of which are home- or farm-based.	1. Maintain the existing pattern and density of rural residential development. 2. Maintain forest cover in the upland portions of the watershed to protect wildlife habitat, water quality and scenic character. 3. Maintain and discourage fragmentation or conversion of productive farm and forest land.	1. Evolve the land use and vegetative cover along the Dog River to provide improved riparian buffers, stabilize the streambanks, filter run-off and remove invasive species.	
EXIT 6	The Exit 6 area encompasses the southeastern corner of town bounded by I-89 and Scott Hill Road. Much of this area is currently undeveloped forestland. Development potential is limited by a lack of public infrastructure.	1. Maintain the rural character and low-density development pattern. Further commercial or industrial development at Exit 6 is not consistent with the overall goal of focusing growth in the northeast quadrant, and would compete with the established commercial and industrial areas at Exit 7, around the airport, and along Route 302. 2. Maintain working farm and forest land in productive use.		
WEST SIDE	This area begins west of the Route 12 corridor and continues to the town line. These lands are largely forested with low-density, large-lot residential development scattered along several roads that extend up into the hills from Route 12. Most of the roads in this area dead-end or are not maintained year-round, with the exception of Cox Brook Road that connects to Route 100B through Moretown. More than 1,800 acres remains part of a single parcel currently managed for timber production.	1. Maintain forest cover, rural character and a very low-density development pattern. 2. Maintain working farm and forest land in productive use. 3. Maintain and discourage fragmentation of large tracts of farm and forest land. 4. Maintain existing public rights-of-way but avoid expanding the amount of publicly maintained road in remote areas. 5. Maintain and expand recreational trail networks. 6. Maintain riparian buffers and forest cover in upland portions of the town's watersheds to protect water quality and attenuate downstream flooding and erosion hazards.		

PHOTO: TOBY TALBOT

OBJECTIVES

1. Provide a multi-modal transportation system that is capable of supporting further growth in the northeast quadrant.
2. Increase the number of commuters traveling in or out of Berlin by means other than single-occupancy vehicles (transit, biking, carpooling).

POLICIES

1. Promote compact, walkable, higher density neighborhoods in the northeast quadrant to reduce the distance residents need to travel for work, shopping and services, and to encourage greater transit use.
2. Focus commercial and industrial development in the northeast quadrant where it can be served by existing transportation infrastructure and transit service.
3. Call upon the state and town to maintain and improve highways as necessary to foster growth and development as envisioned in this plan.
4. Avoid increasing the total length of roads maintained by the town unless it will improve the efficiency of maintenance operations and/or support development that generates adequate tax revenue to offset increased costs.
5. Encourage improved access management on state highways and other high-traffic roads.
6. Support and advocate for construction of the Central Vermont Path through Berlin.
7. Seek improved accommodation for bicyclists and pedestrians on state highways and other high-traffic roads in the northeast quadrant.
8. Require private roads to be constructed in accordance with town road standards and developers to provide a maintenance agreement or equivalent for new private roads.
9. Maintain town ownership of Class 4 roads and legal trails as a public recreation resource.

ACTIONS

1. Continue to actively participate in the Central Vermont Transportation Advisory Committee to advocate for the state-funded transportation projects needed to further the objectives and policies of this plan.
2. Adopt revised land use regulations with adequate standards for access management, curb cuts, driveways and roads to promote a safe and efficient transportation network.
3. Develop and adopt a policy regarding the construction and maintenance of sidewalks along public roads.
4. Seek implementation of the priority projects listed in Section 3B of this plan.

3. TRANSPORTATION

3A. Existing Conditions

Streets and Highway Network

INTERSTATE 89. Interstate 89 travels through town with Exits 6 and 7 located in Berlin and Exit 8 just across the town line in Montpelier. Construction of I-89 commenced in 1960, but the interstate was not opened in Berlin until 1970 as part of the final segment that completed the full length of the interstate through Vermont and New Hampshire.

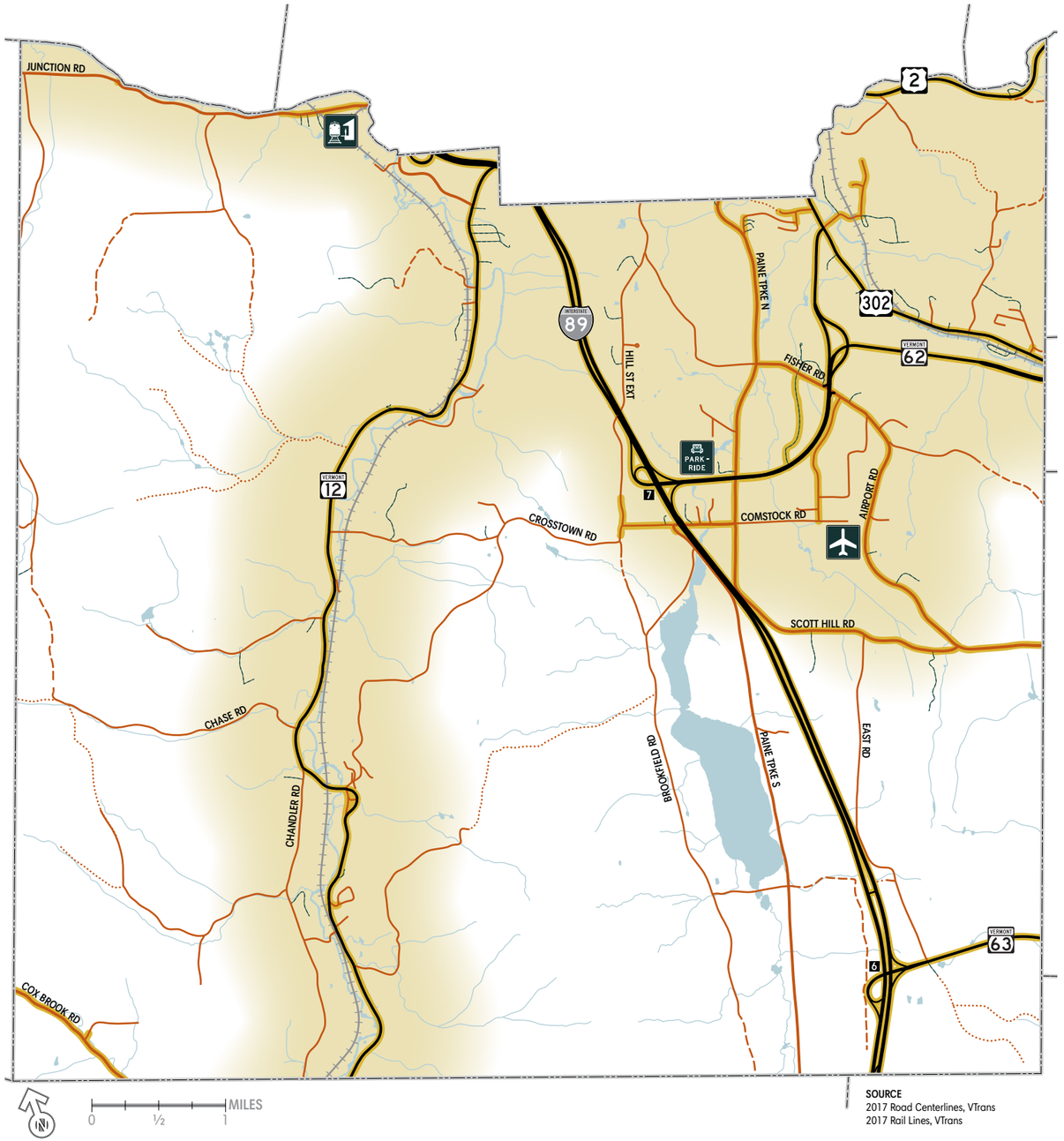
The construction of I-89 has shaped and continues to influence Berlin's land use patterns, particularly the commercial and industrial development in the northeast quadrant. Access to the interstate is clearly an important factor differentiating the eastern and western portions of town. The land west of I-89 is not readily accessible from the interstate and has remained rural, while the land to the east served by Exit 7 has been developed.

FEDERAL AND STATE HIGHWAYS. Federal and state highways form the backbone of Berlin's transportation network and have made it possible for the town to become a regional employment and service center (*see "Transportation Map" on page 19*). The capacity of these highways to accommodate additional traffic directly affects Berlin's growth potential and the ease with which businesses can locate or expand in town.

There is limited information about the current condition and capacity of these highways. The Vermont Agency of Transportation last updated their highway sufficiency ratings in 2008. The amount of traffic on the highways in Berlin generally declined between 2000 and 2015 (*see "Average Annual Daily Traffic Statistics" on page 20*) suggesting that there is adequate capacity to accommodate growth. However, according to recent traffic studies undertaken in conjunction with proposed development projects, several key intersections have a level of service of D or E, indicating problems with congestion and safety. These intersections create bottlenecks that restrict the amount of additional traffic the highways can accommodate. The state may require developers to pay for intersection and highway improvements to mitigate traffic impacts of proposed projects through the Act 250 process.

TOWN ROADS. Berlin maintains approximately 51 miles of town road, less than 10 miles of which are paved (*see "Transportation Map" on page 19*). About 900 residences and businesses were accessed from town roads in 2017. The town has approximately 7.5 additional miles of Class 4 roads that are not maintained for year-round travel and 4 miles of legal trails no longer

Transportation Map



maintained but available for recreational use (see Berlin General Highway Map). These roads cannot provide access for development unless they are upgraded to at least Class 3 standards.

Severe terrain, water bodies and the interstate have resulted in Berlin being divided into distinct areas with few to no road connections between them. Many town roads travel up into the hills and dead-end. Only one road connects the east and west sides of town – Crosstown Road. This fragmented and discontinuous system of roads reduces the efficiency and increases the cost of road maintenance.

The amount spent on town highways each year represents nearly 40% of Berlin's operating budget (not including capital expenses). That amounted to approximately $19,000 in highway costs per mile of town road in 2017. Given the dispersed, low-density land use pattern in most of Berlin, it is possible for the cost of maintaining a town road to exceed the taxes paid by the properties it serves. As a result, the town seeks to avoid further expansion or substantial upgrades of the town road network in low-density areas.

PRIVATE ROADS. Private roads serve much of the residential development that has occurred during the past 30 years in Berlin. There were 55 private roads in Berlin totaling more than 9 miles, serving more than 300 residences and businesses as of 2017. It is likely that most future development not accessible from the existing road network would be accessed from private roads. Berlin should ensure that new private roads are built to basic standards and that there is a formal maintenance agreement between the owners of the properties served by the road. This could avoid damage to public infrastructure caused by poorly constructed or maintained private infrastructure or liability for taking over and repairing failed private infrastructure.

Transit Service and Public Parking

TRANSIT. Green Mountain Transit (GMT) is the public transit provider in central and northwestern Vermont. GMT offers commuter, deviated fixed routes and demand response shuttle service. Various GMT bus routes directly served or traveled through Berlin in 2017. Generally, GMT can provide demand response service within ¾ of a mile of its established routes (*see "Transportation Map" on page 19*). The town appropriates a small amount of funding each year to support Green Mountain Transit (about $11,000 in 2017). As of 2017 there was also a commuter bus linking Montpelier to Randolph along the I-89 corridor that stopped at the Exit 7 park-and-ride.

PARKING. The town does not provide any public parking, but VTrans owns and maintains a 76-space park-and-ride lot at Exit 7. Connecting bus service on several routes is available from the lot. As of 2017, VTrans had identified several deficiencies at this facility as documented in the 2017 Berlin Park-and-Ride Alternatives Analysis Memo.

Bicycle and Pedestrian Network

Bicycle and pedestrian facilities are severely limited in Berlin, but there has long been considerable community support for improved bicycle and pedestrian facilities in town (*see "Recreational Resources" on page 11*). Given that many of the major roadways where bicycle and pedestrian facilities are most needed are state highways, any improvements will require the approval and participation of VTrans.

The roughly 150 feet of sidewalk along the Hospital Loop Road is the only public sidewalk in town (there are internal walkways within the hospital and mall sites). It ends at a crosswalk across Fisher Road to Berlin Mall Road. It is maintained by the hospital, not the town, and was a condition of a recent Act 250 permit. As of 2018, the sidewalk did not continue along Berlin Mall Road (a marked walkway was installed in 2017). VTrans added dedicated bike lanes to a portion of Route 302 in 2016 as a trial road diet project. It is anticipated that the new configuration will be made permanent.

Airport

Berlin hosts the Edward F. Knapp State Airport, a state-owned general aviation airport located on 242 acres in the northeast quadrant of town. The 2009 Edward F. Knapp State Airport Business Plan provides a detailed description of the airport facilities and operations. The Development Plan for the airport was last updated in 2010 and shows taxiway and apron improvements in progress at that time and now in place.

The Planning Commission has drafted an Airport Overlay District intended to "ensure a compatible relationship between the airport and other development in the vicinity." The proposed district would refer development applications to the Airport Manager for review to avoid hazards or adverse impacts to aircraft operations.

Rail

The New England Central Railroad (NECR) operates approximately 7 miles of track through Berlin generally paralleling the Dog River. The Washington County Railroad Company spur also travels through Berlin from Barre to Montpelier, joining the NECR line at Montpelier Junction. Daily passenger service via Amtrak's Vermonter line is available from the Montpelier-Berlin Station and is the only passenger rail service in the Barre-Montpelier area.

3B. Priority Needs

There was one highway project in Berlin on the VTrans project list as of 2017, the replacement of Bridge #3 on Route 302 over the Stevens Branch (VTrans project #: BF 026-1(43)). The alternative recommended in the scoping study was a full bridge replacement with construction not anticipated to occur before 2022.

Berlin had several transportation projects on the priority list developed by CVRPC's Transportation Advisory Committee in 2017 that it will call upon the state to fund or undertake:

- An enlargement and upgrade to the existing park-and-ride lot at Exit 7 (Route 62). VTrans was studying various alternatives as of the writing of this plan (see 2017 Berlin Park-and-Ride Alternatives Analysis Memo).
- Construction of the Central Vermont Regional Path. The previously planned alignment within the railroad right-of-way is no longer considered a viable option and further planning is needed to develop a new route for the path.

It is anticipated that stormwater-related improvements will be required on town roads to comply with Municipal Roads General Permit requirements, which take effect in 2018 with at least 15% of non-compliant segments upgraded to meet standards by 2021-22 and full compliance by 2036. Central Vermont Regional Planning Commission was in the process of inventorying and assessing Berlin's town roads for compliance with the new permit requirements in 2018. Further work will also be needed to identify and address road erosion.

Enhancing the walkability of the planned town center is another transportation priority for the town. Most of those improvements will be completed by the private sector as part of development projects. As the pedestrian network develops within the town center, Berlin should be working with the developers, CVRPC and VTrans on getting pedestrians safely across Route 62 to Berlin Corners and the airport business park. The impact of town center development on the Route 62 intersections will also have to be studied and addressed in coordination with the town center developers, CVRPC and VTrans.

VTrans had classified the pavement condition on several segments of Route 12 through Berlin as poor or very poor as of 2017. These segments should be repaired as needed and repaved. Adequate shoulders for bicycling should be provided wherever feasible on Route 12.

Average Annual Daily Traffic Statistics

HIGHWAY		AADT 2015	CHANGE 2000-2015	CHANGE 1990-2015
I-89	Exit 5 to Exit 6	20,400	+31%	
	Exit 6 to Exit 7	18,500	+23%	+48%
	Exit 7 to Exit 8	22,100	+7%	+28%
US RT 2		9,700	+18%	+29%
US RT 302	Montpelier line to Berlin St Hwy	13,300	-6%	-13%
	Berlin St Hwy to Vt Shopping Ctr	13,400	-11%	-6%
	Vt Shopping Center to Ames Dr	12,000	-12%	
	Ames Dr to Barre City line	10,800	-16%	-17%
VT RT 12	Northfield line to Crosstown Rd	3,800	-3%	
	Crosstown Rd to Dog River Rd	3,700	-14%	+32%
	Dog River Rd to Montpelier line	3,300	-8%	
VT RT 62	Exit 7 to Paine Turnpike	13,800	+9%	
	Paine Tpke to Berlin Mall Rd	13,600	0%	+37%
	Berlin Mall Rd to Fisher Rd	11,400	-7%	
	Fisher Rd to Berlin State Hwy EB	17,500	-6%	
	Berlin St Hwy EB to BSH WB	14,000	-8%	
	BSH WB to Barre City line	11,000	-8%	
VT RT 63		5,400	+20%	
BSH	Airport Rd to Granger Rd	3,000	-6%	
	Granger Rd to US Rt 62	6,600	+8%	
	US Rt 62 to US Rt 302	7,000	-1%	+25%
PAINE TPKE	Montpelier line to Fisher Rd	6,300	+3%	+232%
	Fisher Rd to Route 62	2,800		+133%
	Route 62 to Crosstown Rd	4,900		

PHOTO: TOBY TALBOT

OBJECTIVES

1. Provide the utilities and facilities necessary to support further residential, commercial and industrial growth in the northeast quadrant.
2. Have full cell phone coverage throughout town and affordable access to high-speed internet in the northeast quadrant and rural residential areas of town.
3. Integrate civic buildings and functions into planned town and village centers.
4. Meet the town's obligations under Vermont's Clean Water Act (Act 64).

POLICIES

1. Focus higher-density housing, commercial and industrial development in the northeast quadrant where it can be efficiently served from existing or planned utility networks, and where the availability of that infrastructure will reduce development costs.
2. Ensure that stormwater run-off from developed land is managed at the source so it will not place an undue burden on public infrastructure.
3. Fund new or extended utilities and facilities primarily through user fees, grants or other financing mechanisms to avoid overburdening property taxpayers.
4. Support provision of quality childcare, education and recreation services so Berlin will be an attractive community for families.

ACTIONS

1. Maintain a capital improvement program that is aligned with the goals and objectives of this plan, and meets the requirements for the proposed new town center designation.
2. Continue to extend municipal water and sewer in the northeast quadrant to support future economic growth and residential development in a manner consistent with smart growth principles, and dedicate reserve capacity to support development within the proposed new town center.
3. Implement the stormwater practices and projects recommended in Berlin's 2017 Stormwater Management Plan.
4. Explore the feasibility and potential cost savings of partnering with neighboring communities to regionalize public safety and emergency response services.
5. Call upon the state and supervisory union to continue efforts to control education costs, including via shared services & consolidation.

4. UTILITIES & FACILITIES

4A. Existing Conditions

Educational Facilities

The Berlin Elementary School is located on a 26-acre site at the corner of Route 62 and Paine Turnpike North shared with the Berlin Volunteer Fire Department. It serves students from pre-kindergarten through grade 6.

There were 215 children enrolled at Berlin Elementary School during the 2017-18 school year. Enrollment peaked at about 300 students in the 1990s. The school district has completed several major building upgrades in recent years and no additional improvements or expansions of the elementary school were being considered as of 2018.

Older students attend the regional Union 32 Middle and High School in East Montpelier, which had a total enrollment of 740 children (165 from Berlin) during the 2017-18 school year. Enrollment peaked at nearly 900 students in the mid-2000s. The last major upgrades to the Union 32 High School were completed in 2002. There were no plans for significant facility improvements being considered as of 2018.

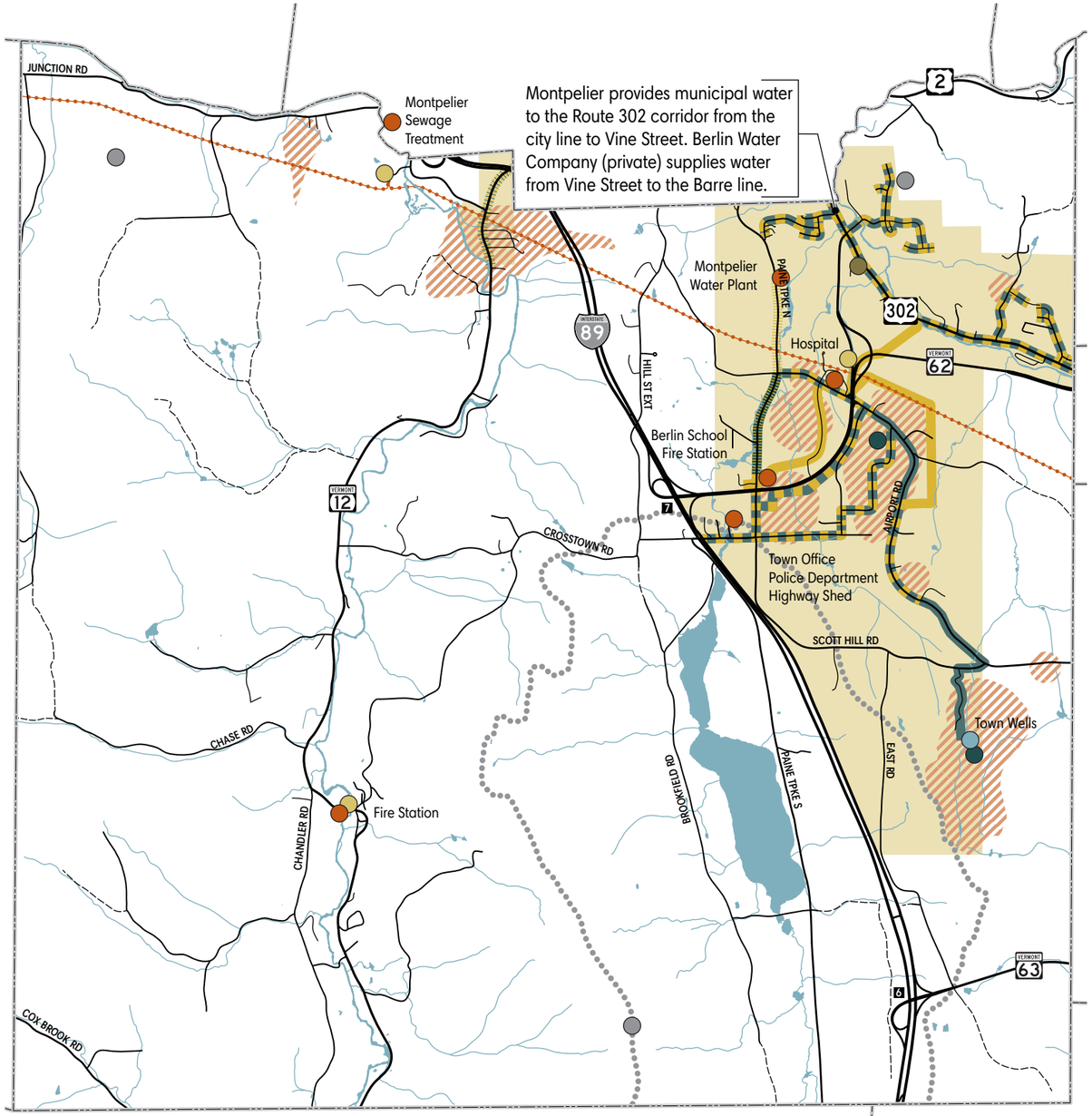
Town Government Facilities

Berlin's town government is based at the Municipal Building located on Shed Road, which shares the 9.7-acre site with the highway garage. The Municipal Building houses the town administration, police department, public works department and historical society. It was most recently expanded and renovated in 2006. While meeting most of the town's needs, it does not provide space for large meetings. The town highway garage and surrounding land house the town's road maintenance vehicles, equipment and materials. No plans for major improvements to either facility were being considered as of 2018. The Town of Berlin also owns and maintains nine historic cemeteries. The Berlin Corner Cemetery Association operates that cemetery, which is still active.

Public Safety Facilities and Services

Berlin has a police department with 7 full-time officers. The police department budget in 2017 was approximately $960,000 (38% of town expenditures) not including capital expenses. The department's budget had been offset by approximately $100,000 in revenue from contract services for providing police protection at Central Vermont Medical Center, a contract that was

Utilities and Facilities Map



See Commercial and Industrial Areas (page 28) for more information on the availability of three-phase power in the northeast quadrant and Public Water Systems (page 22) for more information on public water supplies and their source water protection areas.

not renewed in 2018. The department is based in the Municipal Building and there were no identified needs for facility improvements or additional staffing as of 2018.

The Berlin Volunteer Fire Department provides fire protection and emergency response from a primary fire station located adjacent to the elementary school and a secondary station in Riverton. There is an ongoing need to replace vehicles and equipment, but there were no identified needs for facility improvements as of 2018. In 2017, the department had approximately 20 active volunteer firefighters who responded to more than 500 calls (65% were rescue and emergency medical, only 5% were fires). As with all-volunteer departments elsewhere, the Berlin Volunteer Fire Department is finding it increasingly difficult to attract and retain responders. In 2017, each active firefighter volunteered approximately 120 hours in training and response time.

Berlin residents receive emergency medical response and transport from ambulance services based in Barre Town and Northfield. Barre Town EMS, which serves six communities in the region, operates a substation out of the Berlin fire department building and serves the eastern and norther portions of town, while Northfield serves the southwestern quadrant. The Town of Berlin makes an annual payment to each service.

Healthcare Facilities

Berlin is home to Central Vermont Medical Center, the regional hospital, and associated medical practices, as well as the Vermont Psychiatric Care Hospital. This concentration of healthcare providers represents a significant portion of the town's employment base and ensures residents have convenient access to healthcare services. The hospital and related healthcare providers and businesses also serve as an anchor for the planned town center – generating customer traffic for businesses and demand for workforce housing in the town center.

Electricity Infrastructure

Green Mountain Power provides electricity in most of Berlin with a small area of town served by Washington Electric Cooperative (*see "Utilities and Facilities Map" on page 21*). There was three-phase power available in most of the northeast quadrant of Berlin and in Riverton as of 2018 (*see "Commercial and Industrial Areas" on page 28*). GMP had substations in Riverton and at their facility off Nelson Drive. A VELCO 115 kV transmission line passed through the northern portion of town. As of 2018, there were no plans to significantly upgrade the electricity infrastructure serving Berlin.

Telecommunications Infrastructure

Fairpoint provided landline phone service throughout Berlin and DSL internet service in many areas of town as of 2018. Several companies provided cable television and internet service along the major road corridors and in the northeast quadrant. Remote areas of town had limited access to high-speed internet service. There were at least three telecommunication towers in Berlin (*see "Utilities and Facilities Map" on page 21*). Given the terrain, there remain areas of town lacking adequate cell service.

Water Supply Infrastructure

A combination of public and private systems provide potable water to development in parts of Berlin (*see "Public Water Systems" on page 22*). There were 12 public drinking water systems in Berlin as defined and regulated by the Vermont Agency of Natural Resources that have source protection areas (*see "Water Resources Map" on page 8*) as of 2018.

Wastewater Disposal Infrastructure

Municipal sewer service is available in portions of Berlin (*see "Utilities and Facilities Map" on page 21* and *see "Municipal Sewer Service" on page 22*). Through an inter-municipal agreement, Berlin purchases sewer capacity from Montpelier. The town had approximately 200,000 gallons of unused capacity in 2018.

Stormwater Infrastructure

Municipal stormwater infrastructure consists primarily of open drainage ditches and culverts along town highways. Upgrades to this infrastructure and improved stormwater management on municipal sites will be required over the next decade under new state clean water and general road permit requirements (Act 64). Berlin's 2017 Stormwater Management Plan includes specific recommendations for improving stormwater management on municipal sites and town roads.

Until very recently, most private development in Berlin was constructed with minimal stormwater management infrastructure, which has resulted in untreated stormwater discharging directly to roadside drainage systems or surface waters. In response, the Planning Commission has drafted new stormwater requirements for private development that it recommends be incorporated into the town's land use regulations.

The Vermont Agency of Natural Resources has listed the Stevens Branch from Barre City to the Winooski mainstem,and the segment of the Winooski mainstem between the Montpelier sewage treatment plant and the Middlesex dam as 'stressed' due to urban runoff. If runoff from developed land and roadways continues to reduce water quality, ANR may classify one or more of the watersheds in Berlin as 'impaired' due to stomwater, which would lead to enhanced stormwater permitting requirements for new development requiring a state stormwater permit.

Solid Waste Disposal Facilities and Services

Berlin is a member of the Central Vermont Solid Waste District (CVSWD). The district's Solid Waste Implementation Plan as most recently adopted is incorporated into this plan by reference. By belonging to CVSWD, Berlin is meeting its obligation under state law to plan for the community's solid waste disposal needs.

As of 2018, there were no transfer stations or drop-off locations in Berlin. A number of haulers provide pick-up service or residents can take their trash to a transfer station or drop-off location in a neighboring community.

4B. Planning Considerations

The Town of Berlin will need to continue its efforts to provide water and sewer in the northeast quadrant and to address stormwater management to further the land use, housing and economic development goals of this plan. Provision of this infrastructure in those areas planned for service will be primarily the responsibility of the town.

Berlin should explore alternative approaches to providing emergency response and public safety services that would avoid escalating costs and maintain high-quality service. The town should work with neighboring municipalities to study and plan for regionalization of these services.

Electricity and telecommunications infrastructure will need to be maintained and upgraded on an ongoing basis to provide state-of-the-art, reliable, high-quality service to Berlin residents and businesses as technology advances and evolves. This infrastructure is essential to both economic development and quality of life. Necessary repairs and improvements will be primarily the responsibility of the utilities and service providers.

Public Water Systems

Vermont classifies any water system with 15 or more service connections or that serves 25 or more people as a public water supply. There were around 20 active public water supplies in Berlin as of 2017. The number of public water supplies has been decreasing as Berlin expands municipal water, and it is anticipated that more will connect to town water in the future. This opens up land previously unavailable for development or other use due to well buffer requirements, particularly in the airport business park.

Three of these systems comprise what is commonly considered municipal water in Berlin:

- The Berlin Municipal Water System served 95 customers in the northeast quadrant as of 2018. The town's three wells went online in 2015 and together supply 150 gallons per minute. The system was at capacity as of 2018. The town was planning to drill a fourth well to expand capacity.
- The Berlin Water Company is a private company that provides water along the eastern portion of the Route 302 corridor. The town was discussing acquisition of the company in 2018 and incorporating it into the municipal system.
- The Montpelier city water system provides service along the western portion of the Route 302 corridor. It is anticipated that Montpelier will extend their water service to the northern segment of Route 12 in 2018.

Municipal Sewer Service

Berlin operates a municipal sewer system, but does not have its own treatment plant. The town purchases sewage treatment capacity from Montpelier. Berlin had an allocation of 600,000 gallons per day of treatment capacity, 200,000 gallons of which was unused, as of 2018. Further, Montpelier's sewage treatment plant was operating at less than 30% of capacity as of 2018 suggesting that it could accommodate any additional capacity Berlin may need for the foreseeable future.

PHOTO: TOBY TALBOT

5. ENERGY

OBJECTIVES

1. Increase the number of commuters traveling in or out of Berlin by means other than single-occupancy vehicles (transit, biking, carpooling).
2. Increase the amount of renewable energy being produced in Berlin in a manner that is consistent with the goals, objectives and policies of this plan.
3. Reduce overall energy use in Berlin through conservation and efficiency measures.

POLICIES

1. Promote compact neighborhoods with energy-efficient housing in the northeast quadrant in proximity to transit, employment, shopping and services to reduce household energy use.
2. Focus commercial and industrial development in the northeast quadrant in proximity to major transportation corridors, transit and existing population centers.
3. Guide ground-mounted commercial solar projects to sites that are not within existing or planned water or sewer service areas.
4. Encourage large-scale development or redevelopment projects to install solar collectors on rooftops and within parking lots.
5. Support individual or residential renewable energy projects that are compatible with the goals, objectives and policies of this plan.
6. Oppose commercial wind projects in the vicinity of the Irish Hill Conservation Area and ridgeline.
7. Consider life cycle costs (initial construction + ongoing operation) when planning to construct or upgrade municipal facilities.
8. Support programs that assist owners with weatherizing and improving the efficiency of existing buildings, and/or provide incentives for energy-efficient construction or renovation.
9. Encourage owners to manage forestland for long-term, sustainable harvesting of wood as a renewable fuel source.

ACTIONS

1. Participate in the Section 248 process and call upon the Public Utilities Commission to make decisions that further the goals, objectives and policies of this plan.

5A. Current Energy Use

Energy use in Berlin reflects the community's role as an employment and service center for the region. The commercial and industrial sector represents a much larger percentage of total energy used in Berlin than the residential sector. While accurate data is not available to determine how total energy use (electricity, thermal, transportation) is split between the sectors, the data available for electricity use provides evidence that energy usage in Berlin is driven by the commercial and industrial sector, which is not typical of most Vermont towns (*see "Electricity Use by Sector, 2015" on page 24*).

The best available estimate of the total amount of energy being used in Berlin suggests that in 2015 nearly 824 billion BTUs of energy were consumed for electricity, thermal (heating and cooling buildings), and transportation (*see "Berlin Total Energy Use, 2015 Actual" on page 24*). The figures for thermal and transportation energy are rough estimates based on statewide averages and Census data, while detailed statistics are kept about electricity use by the utilities. More accurate data may become available in the future that will provide a clearer picture of how energy is being used in Vermont and how that use is changing over time.

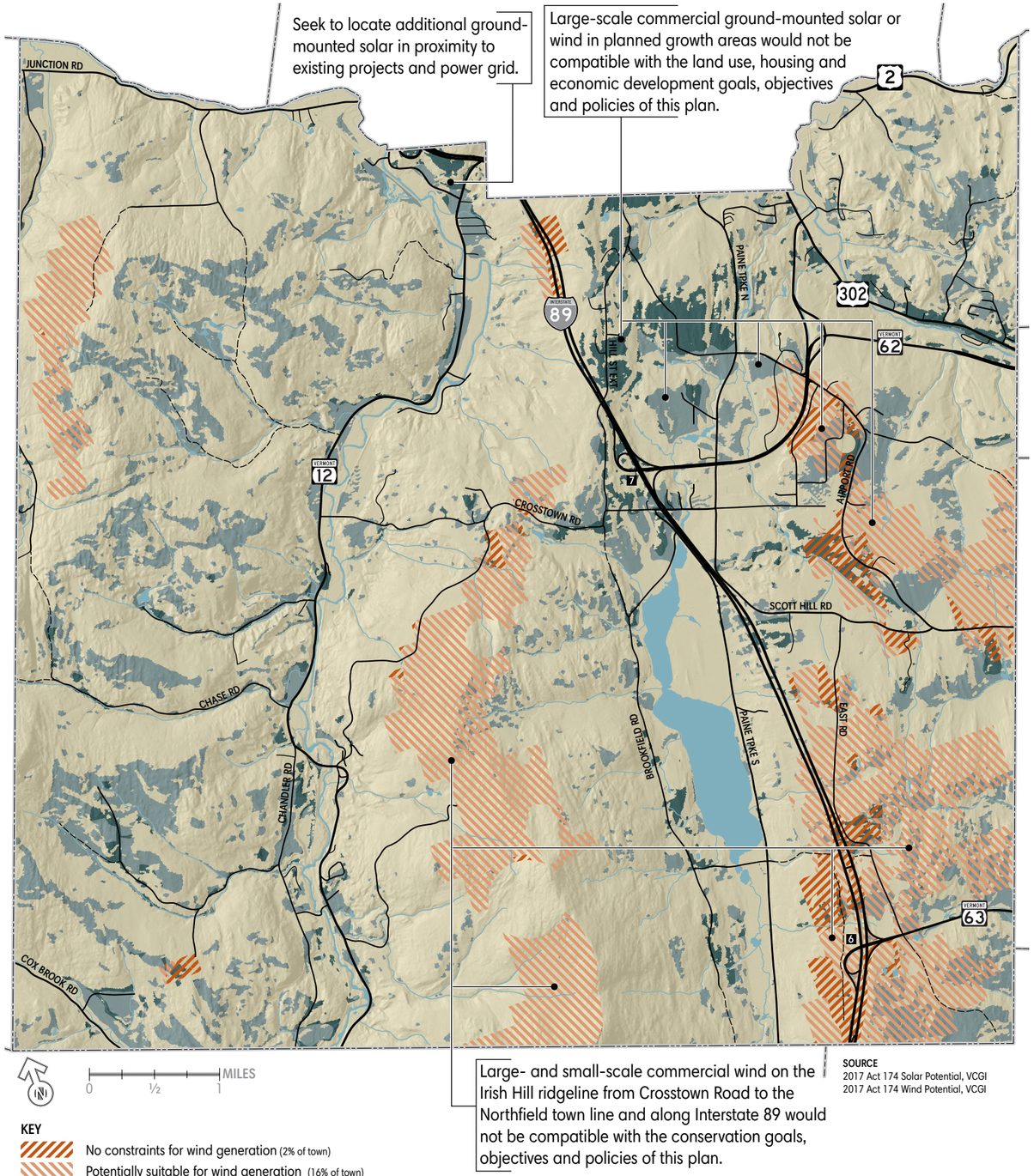
Information about energy use in Berlin is available from:

- The Energy Action Network's Community Energy Dashboard, which tracks the progress of each Vermont community towards the state's goal of meeting 90% of local energy needs through efficiency and renewable energy by 2050.
- The Central Vermont Regional Planning Commission's energy maps and data, which provide current and future energy use data and targets, and energy resource and constraint maps that were developed to assist municipalities with enhanced energy planning under Act 174.

5B. Renewable Energy Resources

Renewable energy sources – hydro, solar, wind, biomass, geothermal – are constantly replenished unlike fossil fuels, which are finite. To reduce the greenhouse gas emissions leading to climate change, Vermont adopted a goal in 2011 to obtain 90% of the total energy used in the state (electricity, thermal, transportation) from renewable sources by 2050. Berlin was meeting 28% of its total energy use from renewables in 2015 (*see "Berlin Total Energy Use, 2015 Actual" on page 24*).

Potential for Wind or Solar Energy Generation in Berlin



KEY

- No constraints for wind generation (2% of town)
- Potentially suitable for wind generation (16% of town)
- Not suitable for solar generation
- Potentially suitable for solar generation (13% of town)
- No constraints for solar generation (3% of town)

SOURCE
2017 Act 174 Solar Potential, VCGI
2017 Act 174 Wind Potential, VCGI

NOTES
This data was produced by the state as part of the enhanced energy planning required under Act 174. Areas shown with solar potential are level or south-facing slopes up to 10% that are not subject to high winds. Areas shown with wind potential are those with wind speeds of 10 mph based on the best available wind resource maps. As required by statute, certain areas or features were removed (shown as not having potential) including: frequently flooded areas, conserved lands, transportation infrastructure, buildings, surface waters, wetlands, deer wintering areas and rare, threatened and endangered species, and natural community features. Other relevant factors such as land cover, distance from roads, distance from the power grid, and regional and municipal land use plans and regulations were not considered. More information about these Act 174 maps is available from VCGI.

Renewable energy projects in Vermont are classified based on type and scale as follows:

- **Individual or Residential** projects generate electricity primarily for their own use. These on-site installations are typically tied into the grid. Most of these projects have a capacity of less than 15 kW, which roughly equates to up to 50 3'x5' solar panels or a wind turbine up to 80 feet tall with blades 18 feet in diameter.
- **Small-Scale Commercial or Community** projects may generate up to 500 kW of electricity to offset the power used by multiple properties through group net-metering. This allows electricity customers who cannot or do not want to install an individual, on-site project to buy renewable power produced off-site.
- **Large-Scale Commercial or Utility** projects are like conventional power plants with the electricity produced going directly into the grid. These include solar projects with a capacity up to 2.2 MW (this could range from 2 to 20 acres of solar panels) and wind projects where each turbine typically has a capacity of 2 MW (such turbines may be up to 450 feet tall with blades up to 350 feet in diameter).

There are limited areas of Berlin that have potential for commercial solar generation (*see "Potential for Wind or Solar Energy Generation in Berlin" on page 23*) due to the combination of landform, forest cover, inaccessibility of much of the rural land in town, and limitations of the power grid and lack of electricity transmission infrastructure in most rural areas of town. There are two existing commercial solar generation sites in Berlin:

- A 200-kW solar installation on Nelson Road owned by Green Mountain Power. It is located on an approximately 4.5-acre site adjacent to a substation and transmission corridor. GMP owns more land in this vicinity that could potentially be used for commercial solar generation.
- A 150-kW community solar project on Muzzy Road operated by SunCommon, which provides electricity to Community Solar Array members.

The remainder of the solar energy being generated in Berlin is net-metered, individual installations that generate electricity primarily for on-site use. There were 31 homes and 5 businesses with net-metered solar in Berlin as of 2017 with a total capacity of about 545 kW. Several of the businesses with net-metered solar have large roof-top arrays. Given the square footage of commercial and industrial buildings, as well as parking lots, in Berlin there is substantial potential for roof-top solar and solar canopies within parking lots.

There is virtually no potential for commercial wind generation (*see "Potential for Wind or Solar Energy Generation in Berlin" on page 23*) in Berlin given current turbine technology. Only 25% of the land shown as having any wind potential has wind speeds high enough to support commercial wind and much of that land is part of the Northfield Village Forest, Berlin Town Forest or Boyer State Forest where commercial wind development would be at odds with the conservation goals for those public lands. There are also restrictions on constructing tall structures such as wind turbines, in the vicinity of the airport and its flight paths.

Berlin is well-suited to produce another form of renewable energy – biomass. While it is not known how much wood is harvested for fuel in Berlin on an annual basis, it is clear that there is considerable potential for sustainable biomass production given that the town is nearly 75% forested. Wood is a renewable source of thermal energy and technological improvements have greatly increased the efficiency and reduced the pollution associated with burning wood.

5C. Siting Standards

This plan calls for increased renewable energy production in Berlin, but those goals and objectives must be balanced with goals and objectives related to:

- Protecting natural resources, environmental quality, scenic resources and rural character.
- Maintaining viable agricultural and silvicultural operations, and the working lands needed to sustain them.
- Making efficient use of public infrastructure.
- Focusing growth and development in the northeast quadrant of town.

The availability of three-phase power and proximity to the transmission grid are important considerations for siting renewable energy projects. Three-phase power, which is needed to transport electricity from renewable projects to the power grid, is generally only available in the northeast quadrant and in the vicinity of Junction Road (*see "Commercial and Industrial Areas" on page 28*). To generate and transmit electricity efficiently and cost-effectively, commercial projects should be located where they will be served by and maximize the use of existing infrastructure rather than requiring significant infrastructure upgrades.

There should be no limitation on the siting of individual or residential scale renewable energy projects provided that the owner will take reasonable measures to site and/or screen ground-mounted installations to minimize any visual or noise impacts beyond the property line, particularly on sites where there is one or more neighboring homes in close proximity to the installation.

Roof-top solar and solar canopies in parking lots, and use of land with other development limitations (such as brownfields and former gravel pits) for renewable energy production should also be encouraged throughout town.

Large-scale commercial projects that are land consumptive should be guided away from sites that have a higher use value such as land served or planned to be served by public infrastructure and suitable for compact residential, commercial or industrial use, or high-quality, productive farmland. Large-scale commercial projects should be required to meet equivalent standards for setbacks and site design (landscaping, screening, lighting, stormwater, etc.) as other light industrial uses in the same area of town.

5D. Energy Conservation

Efficiency Vermont offers homeowners and businesses various programs and incentives for efficiency (see www.efficiencyvermont.com). Opportunities for energy efficiency and conservation include:

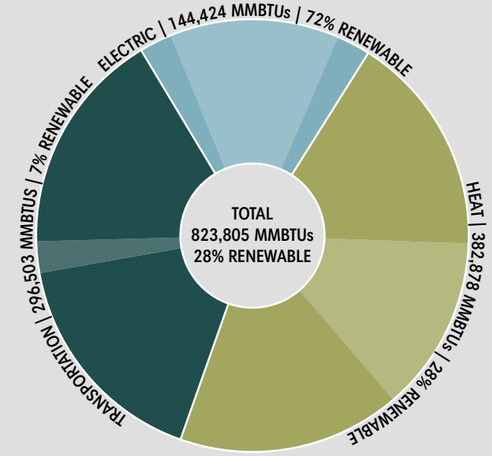
- Weatherization of existing buildings.
- Replacement of inefficient mechanical systems, equipment and vehicles.
- Siting and designing buildings to take advantage of passive solar.
- Construction that meets or exceeds state residential or commercial energy standards.
- Reducing vehicle miles driven for commuting and for daily activities.

5E. Future Energy Use

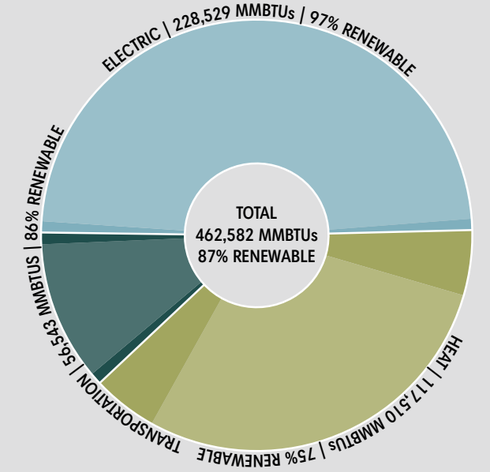
Future targets for energy use and conservation have been set for all Vermont municipalities as part of the state's enhanced energy planning under Act 174 (*see "Berlin Total Energy Use, 2050 Target" on page 24*). This planning scenario envisions that total energy consumption in Berlin will decrease more than 40% between 2015 and 2050, and that use of fossil fuels for heating and transportation will be almost entirely phased out.

This plan's land use, housing and transportation goals, objectives and policies call for new housing and economic development to be focused in the northeast quadrant of town where the availability of public infrastructure will allow it to be built at densities that will support transit, and where people can live close to employment, shopping and services in order to reduce energy used for transportation. Encouraging such a development pattern through the town's land use regulations and provision of public infrastructure are the most effective and direct measures Berlin can take to move towards meeting the state's energy goals.

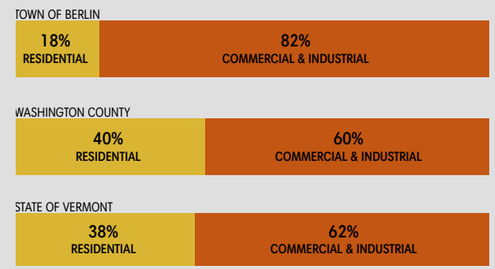
Berlin Total Energy Use, 2015 Actual



Berlin Total Energy Use, 2050 Target



Electricity Use by Sector, 2015



Source: 2015 actual energy use and 2050 energy use target from the Energy Action Network's Community Energy Dashboard expressed in million of British Thermal Units (MMBTUs). 1 MMBTU = 293 kWh.

OBJECTIVES

1. Increase the amount of workforce housing in Berlin so that more people who work in town can live in town.
2. Diversify the housing stock and offer quality housing choices so that households across age and income ranges will be able to live in Berlin.
3. Guide most residential growth to the northeast quadrant where public infrastructure can support efficient, compact development patterns.
4. Discourage residential development on high-quality productive farmland, floodplains and river corridors, ridgelines and steep slopes, and ecologically sensitive lands.

POLICIES

1. Promote compact, walkable neighborhoods with a range of housing in the northeast quadrant in proximity to transit, employment, shopping and services.
2. Support and facilitate development of quality, affordable and workforce housing in Berlin.
3. Support and facilitate development of senior housing and in-home care programs in Berlin that will allow residents to remain living in the area as they age.
4. Seek the removal of mobile homes from flood hazard areas through either relocation or replacement with other forms of affordable housing.
5. Guide any new housing in rural areas to sites that minimize the conversion and fragmentation of working lands and forest blocks.
6. Discourage new housing on land not readily accessible from maintained public roads.

ACTIONS

1. Continue to extend municipal water and sewer in the northeast quadrant to support future residential development in a manner consistent with smart growth principles.
2. Adopt revised land use and development regulations that will implement the housing objectives and policies of this plan, including allowing for higher-density and multi-unit housing in the northeast quadrant.
3. Call upon the state to develop a program to facilitate the relocation of those homes within mobile home parks that are located in flood hazard areas.

6. HOUSING

6A. Current Conditions

Single-Family Housing

Owner-occupied, single-family homes comprise most of the housing in Berlin. The 2016 Grand List included 843 single-family homes (77% of those were homestead properties) and the median assessed value of a single-family home was $223,100.

Approximately 60% of the homes in Berlin were built between 1960 and 2000. Growth was most rapid during the 20-year period following construction of Interstate 89. There has been less than 10 homes built per year in Berlin since 2000 (*see "Housing Units in Berlin, 1990-2016" on page 26*). Most of the housing built since 2000 has been in the Partridge Farms development.

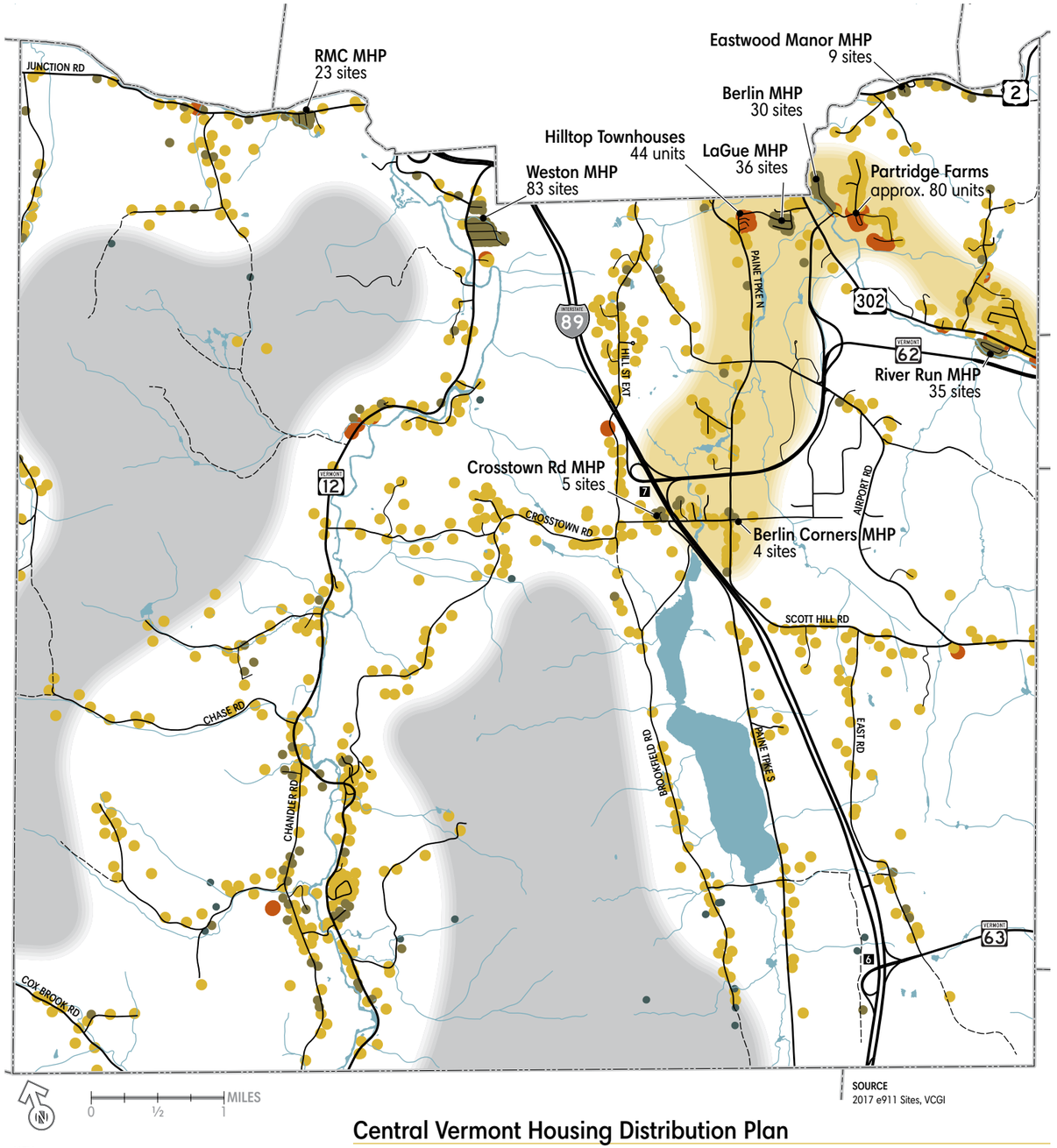
Mobile Home Parks

Mobile homes accounted for approximately 25% of the housing units in town according to the 2016 Grand List, and the majority (about 200) of those homes were located in one of eight mobile home parks in Berlin (*see "Housing Map" on page 25*). As of 2017, approximately 200 of the 225 available sites in the mobile home parks were occupied. Most of the vacant sites were in the River Run MHP where mobile homes were removed from the flood hazard area following Tropical Storm Irene in 2011. The average site rent (excluding utilities) in 2017 was approximately $400 per month. The median assessed value of a mobile home in the parks was $26,450 in 2016.

All of the mobile home parks in Berlin were privately owned prior to 2017 when the residents of Weston's MHP formed a cooperative and purchased the park. State laws and programs promote and facilitate formation of such cooperatives when private owners want to sell mobile home parks. It is likely that other parks in Berlin could ultimately become resident-owned cooperatives. This model can be effective if the cooperative is able to generate the revenue necessary to pay off the purchase and maintain the park. However, cooperatively-owned parks elsewhere in Vermont have struggled to maintain financial viability, particularly when faced with failing infrastructure.

The mobile home parks in Berlin were developed in the 1960s. They pre-date town zoning and most state and federal regulations that would apply if they were to be constructed today. The age, quality and condition of the infrastructure serving the parks presents a future liability

Housing Map



Central Vermont Housing Distribution Plan

The Central Vermont Regional Housing Distribution Plan found on pages 6-16 to 6-18 of the 2016 Regional Plan is incorporated into this plan by reference. It called upon Berlin to plan for the addition of 376 housing units between 2000 and 2015, and for 116 between 2015 and 2020. The plan was based on a projection that has proven to be significantly higher than actual growth rates in the region. While the targets are unrealistic, the goals, objectives, policies and actions outlined in this plan are consistent with the regional goal of providing needed housing within or adjacent to developed areas that are or can be efficiently served by public infrastructure and transportation.

for both park residents and the town as evidenced in other communities when the private infrastructure has failed and the municipality has had to act to protect public health and safety.

Several of the mobile home parks have homes that are located in the special flood hazard area (*see "8. Flood Resilience" on page 29*). Mobile homes are often not adequately anchored and therefore are at greater risk of being swept downstream or otherwise substantially damaged during a flood. Most owners of mobile homes in the special flood hazard area cannot afford to purchase high-cost flood insurance. As illustrated by the aftermath of Tropical Storm Irene, mobile homes in flood hazard areas are an issue statewide.

Multi-Unit Housing

Only about 5% Berlin's housing is in multi-unit buildings. Most of those units are located either in:

- Hilltop Townhouses, a 44-unit affordable housing complex constructed in 1972, or
- Partridge Farm subdivision, which includes approximately 20 condominium units and 10 duplex units.

Zoning requirements and a lack of infrastructure has made construction of multi-unit housing infeasible in most areas of town. Proposed changes to the land use regulations are intended to encourage construction of multi-family housing in the northeast quadrant. The town is also working to provide infrastructure to the northeast quadrant to support higher-density, compact development.

Rental Housing

As typical of many Vermont towns, there is a limited supply of rental housing in Berlin. There was almost no change in the number of rental units between 2000 and 2016 (*see "Housing Units in Berlin, 1990-2016" on page 26*). There is unmet regional demand for rental housing, so this stagnation in rental housing development is likely due to the limited availability of developable land served by infrastructure and zoned for higher-density, multi-family housing in Berlin.

The lack of rental units may be preventing younger or lower income households from being able to find housing in Berlin. County-wide in 2016, 62% of households headed by someone 34 or younger rented, as did 50% of households earning less than $35,000 per year. More than half the jobs in Berlin pay less than $35,000, suggesting that one of the reasons many of those workers do not live in town may be that they cannot find housing.

Senior Housing

Approximately 25% of Vermont's population is expected to be age 65 or older by 2030. Berlin's population is older than the population of the state as a whole. The 2012-2016 American Community Survey estimated that 26% of Berlin residents were age 65 or older (as compared to 17% residents statewide). It is likely that many of Berlin's current residents will want to 'age-in-place' over the next 20 years. Some will opt to stay in their current homes, but others will need or want an alternative to a single-family home on several acres or more of land that is smaller, more affordable, is served by transit, requires less maintenance and/or is accessible.

As of 2018, there is limited housing in Berlin available to meet the needs of seniors. The only dedicated senior housing was the 153-bed Woodbridge Rehabilitation and Nursing facility associated with Central Vermont Medical Center and the 141-bed Berlin Health and Rehabilitation Center. There were no independent living communities or assisted living facilities as of 2018. Looking forward, a continuum of housing from small rental or condo units suitable for active, healthy seniors through assisted living facilities that provide varying levels of support and care will be needed to allow people to remain in the area as they age.

6B. Housing Affordability

Based on the state definition of affordable housing, approximately 78% of ownership units and all of the mobile homes in the parks were 'affordable' in 2016. However, this basic calculation does not necessarily reflect the ability of households in the area to afford housing in Berlin. Nearly 80% of households in Washington County with an annual income less than $35,000 were living in 'unaffordable' housing in 2016, as were more than one-third of those with incomes between $35,000 and $75,000. (*see "Housing Affordability" on page 26*).

The lack of affordable housing has been a statewide concern since the late 1990s. It is a problem that is affecting not only low-income households who have traditionally struggled to find decent, affordable housing, but middle-income households. All areas of the state need workforce housing – both rental and ownership units that are affordable to households earning the average wages for the jobs available in the area.

Living costs are further increased when transportation is considered. People may be able to find less expensive housing in outlying communities but any savings are often consumed by increased costs associated with commuting further to work. There are multiple financial, social, environmental and quality of life benefits when people can live close to where they work.

6C. Future Housing Needs

Finding housing that is suitable, affordable and located near jobs and needed services is a challenge for many households already – or who would consider – living in Berlin. Nearly all of the people working in Berlin live elsewhere and for many that is likely because they cannot find housing in town (*see "Commuting Patterns" on page 28*).

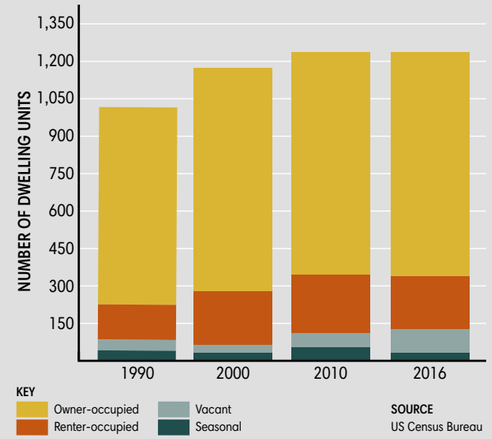
Average household size has declined and lifestyle preferences have changed in recent decades leading to a mismatch between what is available and what people want for housing. Berlin's housing stock is dominated by single-family homes on rural lots an acre or more in size. A greater diversity of housing options (apartments, townhouse/condo units, cottage/small homes on small lots, etc.) will allow households of various sizes, ages and income levels to live in Berlin.

Berlin has a substantial senior population that is expected to increase during the next two decades as discussed above. Seniors from surrounding rural communities may also look to Berlin for housing that is more accessible and closer to services. Berlin will need both independent and assisted living senior housing options so that residents can remain in the area as they age.

As a centrally-located employment center, Berlin is well-situated to accommodate additional housing with reduced transportation costs for those working in town or the greater Barre-Montpelier area. The northeast quadrant is accessible from major highways, is served by public transit and is close to shopping and services including medical care – making it a suitable location for both senior and workforce housing. The town is working to provide the infrastructure needed to facilitate residential development in the northeast quadrant (*see "4. Utilities & Facilities" on page 21*).

In conjunction with encouraging residential development in the northeast quadrant, Berlin is seeking to discourage housing in the remote areas of town not currently served by public roads and utilities. Dispersed, low-density, rural housing costs more to service than compact, centrally-located housing and increases the amount of infrastructure that must be maintained. Often such housing pays less in taxes than it costs to provide with municipal and educational services, increasing the tax burden on all property owners in town. Further, building more rural housing would not be consistent with the goal of diversifying Berlin's housing stock.

Housing Units in Berlin, 1990-2016



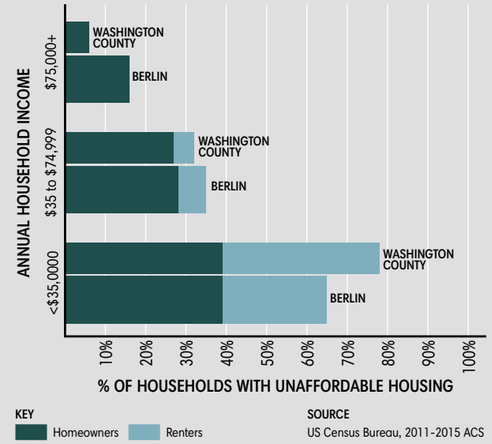
Housing Affordability

Under Vermont statute affordable housing means:

- Owner-occupied housing with costs (mortgage, taxes, insurance & condo fees) that do not exceed 30% of the gross annual income of a household earning 120% of the county median income; or
- Renter-occupied housing with costs (rent, utilities & condo fees) that do not exceed 30% of the gross annual income of a household earning 80% of the county median income.

That definition equated to a owner-occupied home valued at up to $300,000 ($2,175/month housing costs) or a rental unit with costs not to exceed $1,450/month for Washington County in 2016.

The American Community Survey also provides estimates of the percentage of households spending more than 30% of their income on housing costs as shown in the chart below:



7. ECONOMIC DEVELOPMENT

OBJECTIVES

1. Focus commercial and industrial growth in the northeast quadrant.
2. Revitalize existing commercial areas in the northeast quadrant to enhance aesthetics, improve access, and increase economic competitiveness.
3. Increase the amount of workforce housing in Berlin so that more people who work in town can live in town.
4. Maintain the base of working farm and forest land outside the northeast quadrant necessary to support viable farming and forestry businesses.
5. Maintain a balanced tax base that generates the revenue necessary to provide municipal services without overburdening property owners.

POLICIES

1. Ensure that town government supports economic development, maintains a strong relationship with the town's business community, and assists business growth and development.
2. Work with prospective developers and entrepreneurs to identify suitable sites for new or expanded businesses in Berlin and navigate the permitting process.
3. Support proposed development projects seeking state permits that conform to the objectives and policies of this plan and Berlin's land use and development regulations.

ACTIONS

1. Continue to implement the 2008 Economic Development Plan's recommended strategies, including pursuing a local option tax.
2. Seek a new town center designation from the state for the Berlin Mall and surrounding area.
3. Continue to extend municipal water and sewer in the northeast quadrant to support future economic development in a manner consistent with smart growth principles (as defined in statute).
4. Adopt land use and development regulations that will implement the economic development objectives and policies of this plan.
5. Maintain an up-to-date inventory of property available for commercial and industrial development, infill and redevelopment.
6. Work with Vermont state and federal elected representatives to again petition the U.S. Postal Service to re-establish a post office and zip code for Berlin.

7A. Current Conditions

The availability of developable land, convenient highway, rail and airport access, and a central location between Montpelier and Barre have made Berlin into a regional employment and service center. There were more than 5,200 jobs based in Berlin in 2016 according to the Vermont Department of Labor (*see "Jobs & Business Establishments" on page 28*). Commercial and industrial property accounted for approximately 45% of the town's 2016 grand list value.

Berlin's economy has long been dominated by three sectors – healthcare, insurance and retail. More information about current economic conditions can be found in Berlin's 2008 Economic Development Plan.

Healthcare and Insurance

Central Vermont Medical Center was built in 1968 and is now the largest employer in town with approximately 1,500 workers in 2018. The hospital has served as a magnet attracting other healthcare providers and related businesses to locate in Berlin including the offices of Blue Cross and Blue Shield Vermont, the largest health insurance provider in the state. Approximately 30% of job in Berlin were in the healthcare sector in 2016.

Retail

The retail sector accounted for more than 20% of jobs and business establishments in Berlin, and generated $68 million in taxable receipts in 2016. Retail activity in Berlin reflects larger economic trends with growth in the early 2000s, followed by contraction during the Great Recession, and recovery back to the levels seen in the early 2000s by 2015. Retail is focused along Route 302 and the Berlin Mall off Exit 7 (*see "Commercial and Industrial Areas" on page 28*).

Route 302, a connecting highway between two urban centers, has been a preferred location for national and regional retailers serving the Central Vermont market for more than 50 years. In recent years, there has been some turnover in the businesses located along Route 302 and redevelopment, but little overall growth. The corridor is largely built-out, but proposed changes to the town's land use and development regulations are intended to facilitate infill, redevelopment and revitalization (*see "Future Land Use Recommendations" on page 17*).

Berlin Mall was constructed in 1986 as a regional shopping destination. The Berlin Mall has been more successful than many others in adapting to changes in the retail sector. The Wal-Mart, which opened in 2000, serves as major anchor that generates customer traffic for the mall. The addition of Planet Fitness and the freestanding Kohl's department store in the last several years suggests that the location is viable for new businesses. The mall owner is currently planning to transform the Berlin Mall site into a walkable, mixed-use town center (*see "New Town Center" on page 12*).

Light Industry

Much of the recent job growth in Berlin has been in industrial sectors such as wholesale trade, transportation and distribution, and construction and in businesses based in the airport business park. These businesses have chosen to locate in Berlin primarily for two reasons: the availability of suitable land for development and transportation access. The airport business park is now fully served by infrastructure, which has opened up the possibility for higher density development, and a significant amount of buildable land remains available to accommodate future growth (*see "Utilities and Facilities Map" on page 21*).

Agriculture and Forestry

While the northeast quadrant of Berlin has become a regional center of commerce and industry, much of the remainder of town remains rural with a working landscape that supports agriculture and forestry businesses. There were 10 farm parcels and 44 woodland parcels on the 2016 grand list accounting for nearly 20% of the land in town. Approximately one-third of the land in town is farm or forest land enrolled in Current Use (*see "Berlin Conservation and Open Space Map" on page 6*).

Agriculture in Berlin, once dominated by dairy farms, has diversified. Berlin is home to poultry farms, horse farms, vegetable farms, and a vineyard. Managed forests are producing timber and other forest products like maple syrup. Agri-tourism and agri-education businesses are a growing market segment building upon the success of Vermont-branded farm and food products. There are also many hobby and homesteading farms that are not primary income sources for their operators but which are essential to supporting Berlin's agricultural economy and maintaining rural character.

7B. Planning Considerations

Taxes

Berlin's 2008 Economic Development Plan recommended that Berlin enact a local option tax and consider eliminating the business equipment and inventory tax the town currently imposes. A local option tax would have the greatest impact on larger retail businesses due to their sales volume. A 1% local option tax would have raised about $535,000 and could have reduced the amount raised through property taxes by more than 20% in 2016. If town center plans are realized, the amount to be raised through a local option tax would likely increase.

Development Regulations

The 2008 Economic Development Plan also recommended that Berlin adjust zoning district boundaries to better align with the town's vision (*see "1A. Vision" on page 1*), revise zoning district standards to allow for higher-density workforce housing in appropriate areas, and strengthen the regulation's site, building and sign design standards to enhance the quality and aesthetics of new development and redevelopment. The Planning Commission's proposed zoning changes are intended to implement those recommendations.

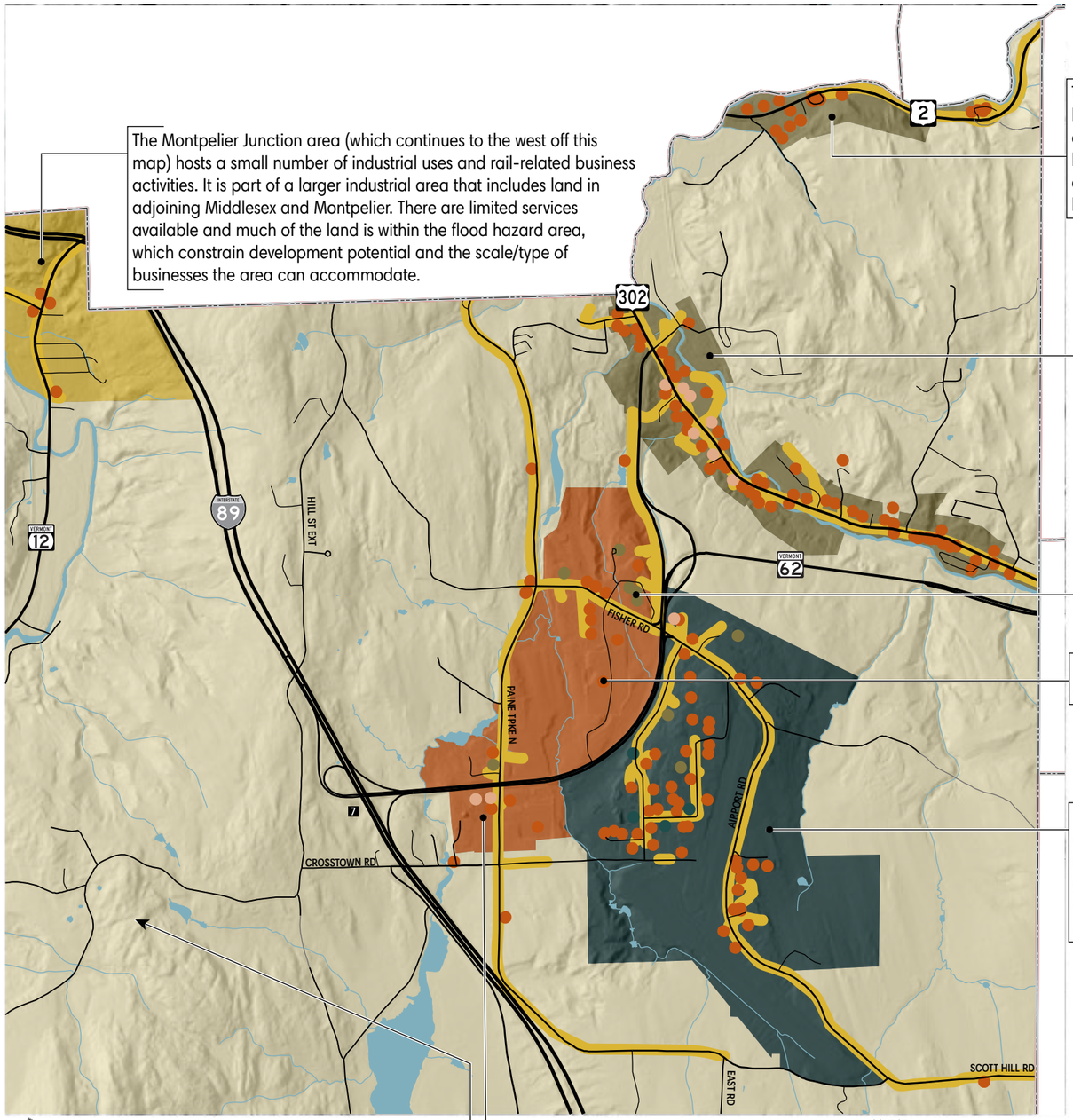
Infrastructure Improvements

Berlin's economic success is dependent on the provision of high-quality infrastructure. The town is actively working to provide water and sewer to support future growth in the northeast quadrant of town. As discussed in *Chapter 3. Transportation (page 19)*, improvements to transportation infrastructure – particularly major state highway intersections – will also be necessary to further the town's economic development objectives.

On-Farm Businesses

The proposed changes to Berlin's land use regulations would allow for expanded on-farm businesses in recognition that agriculture is diversifying and nontraditional agricultural businesses improve the economic viability of farming and contribute to maintaining working lands and the town's rural character.

Commercial and Industrial Areas



SOURCE
2017 E-Sites, VCGI

The Montpelier Junction area (which continues to the west off this map) hosts a small number of industrial uses and rail-related business activities. It is part of a larger industrial area that includes land in adjoining Middlesex and Montpelier. There are limited services available and much of the land is within the flood hazard area, which constrain development potential and the scale/type of businesses the area can accommodate.

The Route 2 corridor is constrained by the river on the north side of the highway and steep terrain on the south side, which limits opportunities for expansion and growth. The area is not served by public water or sewer, but does have three-phase power. Traffic volume on Route 2 is approximately10,000 vehicles per day. As of 2018, there were about 20 businesses in the area.

Route 302 is a primarily retail corridor that serves as a shopping and service destination for the larger region. Its predominate development pattern is that of a typical commercial strip with single-story retail buildings set back from the highway and large parking areas in front. There is not a significant amount of land remaining that is suitable for development, but many of the existing developed sites have potential for infill or redevelopment. The Route 302 corridor is served by water and sewer infrastructure, three-phase power and high-speed internet. Route 302 is a high-traffic corridor linking downtown Montpelier and Barre City that is traveled by more than 12,000 vehicles per day. As of 2018, there were approximately 70 businesses in this area.

Central Vermont Medical Center complex

Berlin Mall was contructed in 1986. The approximately 250,000 square feet of retail space was occupied by 17 retail and service businesses in 2018.

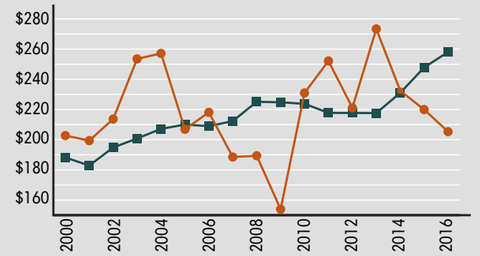
The Airport Road business park is developed with a mix of office, storage and distribution, manufacturing and other industrial uses. This area is still building out and there remains undeveloped land available for additional growth. As of 2018, there were approximately 70 businesses in this area, which was fully served by municipal water and sewer, three-phase power and high-speed internet, and had convenient highway and airport access.

Lodging, dining and traveler service businesses clustered near Exit 7

There are a few small industrial and commercial properties in Riverton, and dispersed along the Route 12 corridor (off this map).

Economic Activity

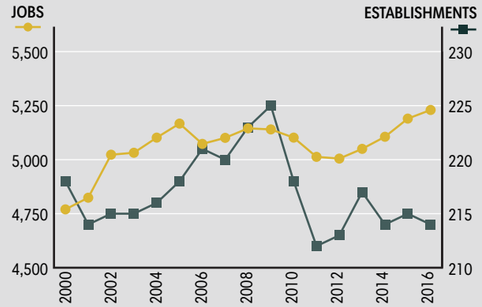
Total wages paid by Berlin employers increased due to job growth, while gross receipts were variable.



Vermont Dep't of Labor & Dep't of Taxes
expressed in millions of $ and adjusted for inflation

Jobs & Business Establishments

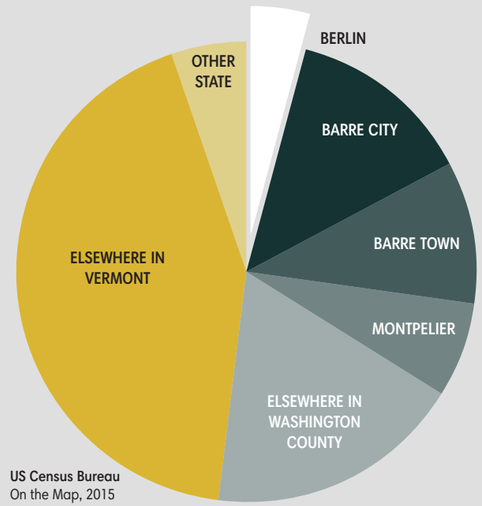
Approximately 500 jobs were created in Berlin between 2000 and 2016, with little change in the number of business establishments.



Vermont Dep't of Labor

Commuting Patterns

96% of jobs in Berlin were held by someone who lived outside of town in 2015 as shown below:



US Census Bureau
On the Map, 2015

OBJECTIVES

1. Mitigate potential flood and erosion hazards, and increase the community's resilience to flooding and other disasters.
2. Prevent increased flood and erosion hazards resulting from irresponsible land use and development practices.
3. Improve or maintain natural riparian functions along streams and rivers in Berlin to prevent or minimize future flood and fluvial erosion hazards.
4. Encourage more property owners to purchase flood insurance for buildings within the Special Flood Hazard Area.
5. Reduce the number of repetitive loss properties and residential buildings in the floodway in Berlin through means such as buyouts.

POLICIES

1. Guide future housing to locations outside floodplains and river corridors.
2. Locate structures and impervious areas away from surface waters and encourage landowners to maintain or establish riparian buffers.
3. Locate new, and relocate existing, public infrastructure and facilities out of floodplains and river corridors whenever feasible.
4. Ensure that any development within the Special Flood Hazard Area fully conforms to the minimum requirements of the National Flood Insurance Program.
5. Ensure that stormwater runoff from developed land is managed at the source so it will not place an undue burden on public infrastructure, increase flood hazards or reduce water quality.
6. Support efforts to reduce the severity of future floods such as allowing rivers to access their floodplains, providing compensatory flood storage, and replacing/removing infrastructure constricting water flow.

ACTIONS

1. Update and re-adopt Berlin's All Hazards Mitigation and Emergency Operations plans, and ensure they are consistent with the goals, objectives and policies of this plan.
2. Implement the hazard mitigation programs, projects and activities identified in Berlin's All Hazards Mitigation Plan.
3. Maintain eligibility and continue to participate in the National Flood Insurance Program.
4. Adopt revised land use regulations that will implement the objectives and policies of this plan related to flood hazards, riparian areas and stormwater management.

8. FLOOD RESILIENCE

8A. Hazard Areas

Floodplains

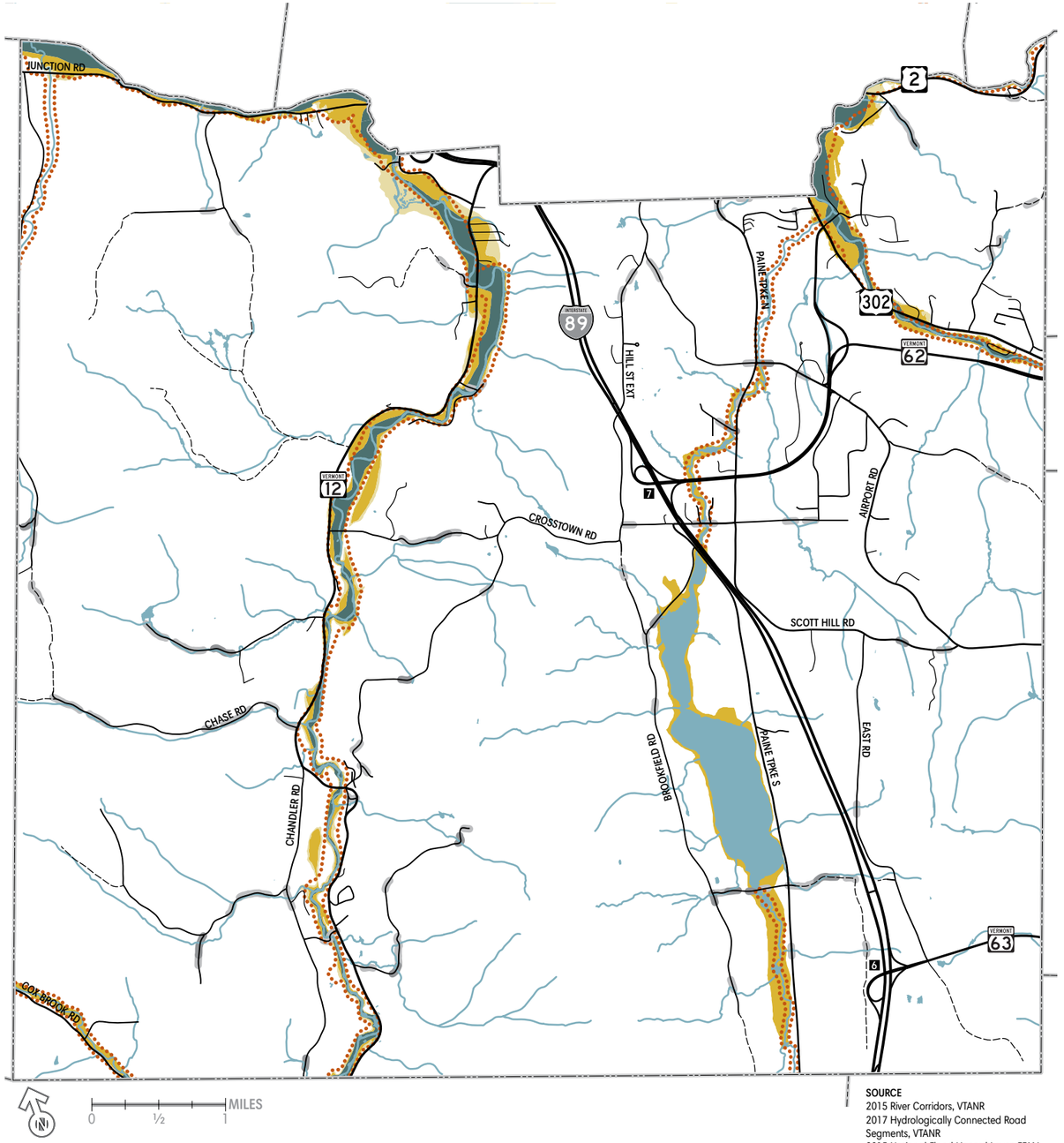
Berlin's landform has resulted in roads and development sharing relatively narrow valleys with streams and rivers in many areas of town. Flood conditions regularly occur in Berlin during major storms and as a result of rapid snowmelt and ice jams. Flooding is often minor or affects only a limited area. However, the frequency and intensity of major floods may have increased during the past two decades as a result of climate change leading to more severe storms that can cause widespread, catastrophic property damage and potential loss of life (*see "Major Floods in Berlin, 1927-2017" on page 30*).

Tropical Storm Irene in 2011 resulted in severe flooding in Berlin with up to five feet of floodwaters in some areas resulting in total damages that exceeded $2.5 million. It was largest storm to occur in Vermont since the devastating 1927 flood. While Irene was remarkable because of its statewide impact, it was only one of a number of storms that caused significant local damage in Berlin since the late-1990s. There was also severe flooding in Berlin in May 2011 (*see "Damage in Berlin from Recent Storms" on page 30*).

Flooding is often described as a natural disaster, but it is actually a natural process that would occur with little damage if it were not for human activities such as:

- Tree removal, compaction of soil and construction of impervious surfaces within watersheds. This can cause higher quantities of stormwater runoff to flow into streams and rivers more quickly during storms, leading to rapid downstream flooding.
- Construction of buildings and infrastructure within flood-prone areas, which is often followed by efforts to protect that investment from flood damage by straightening, berming or armoring the adjacent stream or river. This can increase the volume, speed and power of the stream or river during a storm by preventing it from meandering, accessing its floodplains and dissipating its energy naturally.
- Building infrastructure such as bridges or culverts within or over rivers or streams that constricts the channel. This can reduce the carrying capacity of the river or stream and lead to ice or debris jams that block water flow resulting in unanticipated localized flooding.

Floodplain and River Corridor Map



Flood damage can be mitigated by human actions. Mitigation requires an understanding of the natural processes and forces at work in a stream or river corridor so that development in flood-prone areas can be appropriately sited and designed to avoid or withstand flooding, and to not contribute to increased flooding downstream.

Berlin participates in the National Flood Insurance Program (NFIP), which is a federal program intended to improve floodplain management, and to assist communities and property owners when severe flooding occurs. Property owners in Berlin can purchase flood insurance because the town is enrolled in the NFIP. To maintain eligibility for the NFIP, Berlin must regulate development in mapped floodplains as required by federal regulations. In 2017, Berlin met the requirements for the Federal Emergency Management Administration's Community Rating System, which recognizes that the town is exceeding minimum NFIP requirements, resulting in a 5% reduction in flood insurance rates for Berlin property owners.

FEMA has mapped the town's floodplains. A floodplain is the area of land alongside a water body that is naturally subjected to flooding during periods of high water. FEMA categorizes floodplains into three distinct areas (*see "Floodplain and River Corridor Map" on page 29*):

- **Floodway**, which includes the stream or river channel and the adjacent land where there will be flowing water during a flood.
- **100-Year Floodplain**, which is the area where floodwaters will accumulate during the 100-year storm. The 100-year storm statistically has a 1% chance of occurring in any given year. In Berlin, it is a storm that produces approximately 5.5 inches of rain in a 24-hour period.
- **500-Year Floodplain**, which is the area that will flood during a 500-year storm (statistical 0.2% chance of occurring in any given year).

As of 2017, there were approximately 160 buildings in Berlin located within the Special Flood Hazard Area (the floodway and the 100-year floodplain):

- 111 of those buildings were mobile homes located in the Weston, Berlin and River Run mobile home parks.
- 72 of those buildings were in the floodway (including 47 mobile homes).
- Only 45 (28%) of those buildings had flood insurance policies.
- 3 of those buildings were critical or public structures (VTrans Central Garage Complex on Route 302).
- 1 was a repetitive loss property (a building that has sustained $1,000 or more in flood damage on at least 2 occasions in any 10-year period) remaining. The town purchased the only other repetitive loss property in Berlin through FEMA's Hazard Mitigation Buyout Program in 2017.

An additional 28 buildings and the solar facility on Nelson Drive were located in the 500-year floodplain as of 2017.

River Corridors

The NFIP applies to areas at risk of inundation flooding. That is not the only flood hazard in Berlin, however. Many small streams flow down Berlin's hillsides to the major rivers, which can become powerful torrents of water during heavy storms or rapid snowmelt. They can erode their banks or even cut new channels causing massive damage in the process.

This type of flood hazard is known as fluvial erosion. While it may be likely in floodplains also subject to inundation, there are areas in Berlin that are not FEMA mapped flood hazard areas that are at risk of flood-related damage due to fluvial erosion. Much of the property and infrastructure damage that has occurred during severe storms in Berlin since the late 1990s has been more a result of fluvial erosion than inundation flooding.

To address fluvial erosion hazards, the Vermont River Management Program has defined and mapped 'river corridors' along all streams and rivers (*see "Floodplain and River Corridor Map" on page 29*). The river corridor is intended to encompass land adjacent the stream or river needed to accommodate its meandering, floodplain and riparian functions so that it can remain in, or be restored to, a naturally stable condition thus reducing future erosion hazards. This approach is based on giving rivers room to move rather than seeking to armor or berm them to prevent their movement.

As of 2017, there were 172 structures (including 85 mobile homes) in Berlin located within mapped river corridors or within 50 feet of small streams. 70 (41%) of those were outside the Special Flood Hazard Area.

There were also 17.5 miles of roads located within mapped river corridors or within 50 feet of small streams, 13.5 of which were town roads. The state has further identified and classified roads at risk of erosion (*see "Floodplain and River Corridor Map" on page 29*). In 2018, Berlin will need to obtain a Municipal Roads General Permit from the state that will require improved stormwater management on those road segments in proximity to rivers and streams.

The state is seeking to conserve land within mapped river corridors through its Vermont River Corridor Easement Program, which offers landowners a financial incentive to allow for restoration of channel stability and reduction in the natural erosive forces of the river over time. Approximately 40 acres of land along the Dog River have been conserved through this program (*see "Berlin Conservation and Open Space Map" on page 6*).

Berlin does not regulate development within mapped river corridors in a manner similar to development within mapped floodplains. However, the state regulates development within river corridors for projects that require an Act 250 permit.

Further, the town's zoning regulations effectively prevent development within much of the mapped river corridor area, and include a requirement to maintain naturally vegetated riparian buffers on all rivers and streams. Proposed revisions to the zoning regulations are intended to address previously developed properties that lack riparian buffers. The goal is to guide development away from rivers and streams and allow riparian buffers to become established along their banks over time.

8B. Mitigation Plans

The risks to life and property associated with flooding in Berlin can be reduced or eliminated through hazard mitigation. Specific hazard mitigation projects in Berlin are identified in the two plans described below:

- Berlin has an adopted Local Mitigation Plan. That plan was most recently approved by FEMA in 2013 and the town intends to update the plan in 2018. The Local Mitigation Plan (as most recently adopted) is adopted into this plan by reference, including the Proposed Hazard Mitigation Programs, Projects and Activities (listed on pages 27-29 in the 2013 plan), a number of which are intended to mitigate hazards from flooding and severe storms.
- The 2009 Dog River Corridor Plan identifies potential projects to improve channel stability in the Dog River and its tributaries. That plan is adopted into this plan by reference, including the projects listed in Table 7.1 on pages 90-91.

Through implementation of those plans, Berlin would also become more resilient – able to adapt to changing conditions and rapidly recover from disruptions due to disasters.

Major Floods in Berlin, 1927-2017

Historic floods (prior to 1980) are identified from USGS river gauge and NOAA weather data. Since 1980, floods have been assessed to determine whether they qualify as federally-declared disasters based on the amount of damage to buildings and infrastructure and the current threshold is $1 million across the county.

Damage in Berlin from Recent Storms

29 OCT 2017	Flood
29 JUN 2017	Flood, 2-3" of rain
15 APR 2014	Flood, 4-6" of rain and rapid snowmelt
25 JUN 2013	Flash flood, 1-2" of rain
27 AUG 2011	Tropical Storm Irene, 3-7" of rain, Winooski crested at 19.05' in Montpelier
27 MAY 2011	Flash flood, 3-5" of rain, , Winooski crested at 17.59' in Montpelier
23 APR 2011	Flash flood, 1-2" of rain and rapid snowmelt
21 JUL 2008	Flash flood, 2-5" of rain
9 JUL 2007	Flash flood, 3-6" of rain
14 APR 2002	Flood, 1-3" of rain, Winooski crested at 10.37' in Montpelier
17 DEC 2000	Flood, 3" of rain
16 SEP 1999	Tropical Storm Floyd, 5-7" of rain
27 JUN 1998	Flash flood, 3-6" of rain
15 JUL 1997	Flash flood, 2-4" of rain
19 JAN 1996	Flood and ice jam, Winooski crested at 14.64' in Montpelier

PHOTO: MARK COLLIER

PHOTO: TOBY TALBOT

9. IMPLEMENTATION PROGRAM

The actions identified in each chapter, which are intended to be the means by which the Town of Berlin will implement vision, goals and objectives of this plan, are summarized below with an indication of when the action is currently anticipated to occur (some actions are an ongoing part of town government and are therefore not assigned to a particular year) and the parties involved. While this plan can be in place for up to eight years, specific actions are assigned only for the next five years with the expectation that needs and priorities may evolve over time and that several of the actions, once underway or completed, are likely to generate a need for follow-up actions not currently identified. Not all of the 20 actions listed below may be fully completed within the 8-year planning period, but the Town of Berlin recognizes the actions assigned to a specific year as top priorities for the community and intends to make as much progress as possible on their successful implementation.

1	Adopt revised land use and development regulations that will implement the vision, goals, objectives and policies of this plan.	**LAND USE,** page 7, Action 1 **TRANSPORTATION,** page 19, Action 2 **HOUSING,** page 25, Action 2 **ECONOMIC DEVELOPMENT,** page 27, Action 4 **FLOOD RESILIENCE,** page 29, Action 4	**2019** Planning Commission, Selectboard, town voters
2	Update and re-adopt Berlin's All Hazards Mitigation and Emergency Operations plans, and ensure they are consistent with the goals, objectives and policies of this plan.	**FLOOD RESILIENCE,** page 29, Action 1	**2019** Emergency Management Team, Planning Commission, Selectboard, Central Vermont Regional Planning Commission
3	Maintain a capital improvement program that is aligned with the goals and objectives of this plan, and meets the requirements for the proposed new town center designation.	**UTILITIES & FACILITIES,** page 21, Action 1	**2020** Town Administrator, Assistant Town Administrator and department heads, Selectboard, Planning Commission, town voters
4	Seek a new town center designation from the state for the Berlin Mall and surrounding area, which will require the following actions by the town: adopt an official map, adopt a capital improvement program, execute a community investment agreement with town center property owners, and dedicate water/wastewater reserves to the town center.	**LAND USE,** page 7, Action 2 **ECONOMIC DEVELOPMENT,** page 27, Action 2	**2020** Planning Commission, Selectboard, town center property owners
5	Seek village center designations from the state for Riverton and Berlin Corners.	**LAND USE,** page 7, Action 3	**2021** Planning Commission, Selectboard
6	Maintain an up-to-date inventory of property available for commercial and industrial development, infill and redevelopment.	**ECONOMIC DEVELOPMENT,** page 27, Action 5	**2022** Town Administrator and Assistant Town Administrator, Central Vermont Economic Development Corporation, Central Vermont Regional Planning Commission
7	Develop and adopt a policy regarding the construction and maintenance of sidewalks along public roads.	**TRANSPORTATION,** page 19, Action 3	**2023** Highway Superintendent, Selectboard
8	Continue to extend municipal water and sewer in the northeast quadrant to support future economic growth and residential development in a manner consistent with smart growth principles (as defined in statute) and as necessary to protect public health, and dedicate reserve capacity to support development within the proposed new town center.	**LAND USE,** page 7, Action 4 **UTILITIES & FACILITIES,** page 21, Action 2 **HOUSING,** page 25, Action 1 **ECONOMIC DEVELOPMENT,** page 27, Action 3	**ONGOING** Town Administrator, Assistant Town Administrator, Sewer Commission, Selectboard, town voters

9	Work with Vermont state and federal elected representatives to again petition the U.S. Postal Service to re-establish a post office and zip code for Berlin.	**LAND USE,** page 7, Action 5 **ECONOMIC DEVELOPMENT,** page 27, Action 6	**ONGOING** Selectboard, Town Administrator, state and federal elected representatives
10	Continue to work with Montpelier, Barre City, Central Vermont Regional Planning Commission and VTrans to complete the Central Vermont Regional Bike Path in Berlin.	**LAND USE,** page 7, Action 6	**ONGOING** Planning Commission, Selectboard, Central Vermont Regional Planning Commission
11	Continue to actively participate in the Central Vermont Transportation Advisory Committee to advocate for the state-funded transportation projects needed to further the objectives and policies of this plan.	**TRANSPORTATION,** page 19, Action 1	**ONGOING** Central Vermont Regional Planning Commission Transportation Advisory Committee representatives, Planning Commission, Selectboard
12	Seek implementation of the priority transportation projects listed in Section 3B of this plan.	**TRANSPORTATION,** page 19, Action 4	**ONGOING** Central Vermont Regional Planning Commission Transportation Advisory Committee representatives, Planning Commission, Selectboard
13	Explore the feasibility and potential cost savings of partnering with neighboring communities to regionalize public safety and emergency response services.	**UTILITIES & FACILITIES,** page 21, Action 4	**ONGOING** Selectboard, Town Administrator, Assistant Town Administrator and department heads
14	Call upon the state and supervisory union to continue efforts to control education costs, including via shared services & consolidation.	**UTILITIES & FACILITIES,** page 21, Action 5	**ONGOING** School Board representatives, Selectboard, state elected representatives, VT Department of Education, town voters
15	Continue to implement the 2008 Economic Development Plan's recommended strategies, including pursuing a local option tax.	**ECONOMIC DEVELOPMENT,** page 27, Action 1	**ONGOING** Selectboard, Town Administrator and Assistant Town Administrator, Central Vermont Economic Development Corporation, town voters
16	Implement the stormwater practices and projects recommended in Berlin's 2017 Stormwater Management Plan.	**UTILITIES & FACILITIES,** page 21, Action 3	**ONGOING** Selectboard, Town Administrator, Highway Superintendent
17	Implement the hazard mitigation programs, projects and activities identified in Berlin's All Hazards Mitigation Plan.	**FLOOD RESILIENCE,** page 29, Action 2	**ONGOING** Emergency Management Team, Planning Commission, Selectboard
18	Maintain eligibility and continue to participate in the National Flood Insurance Program.	**FLOOD RESILIENCE,** page 29, Action 3	**ONGOING** Zoning Administrator, Development Review Board, Planning Commission, Selectboard
19	Call upon the state to develop a program to facilitate the relocation of those homes within mobile home parks that are located in flood hazard areas.	**HOUSING,** page 25, Action 3	**ONGOING** Selectboard, Planning Commission, state elected representatives
20	Participate in the Section 248 process and call upon the Public Utilities Commission to make decisions that further the goals, objectives and policies of this plan.	**ENERGY,** page 23, Action 1	**ONGOING** Selectboard, Planning Commission

PHOTO: TOBY TALBOT