Town Plan
Vernon, Vermont

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1 – INTRODUCTION

The town of Vernon is located in the southeastern corner of Windham County. Vernon has an area of 11,652 acres and a population at the time of the 2010 census of 2206. The altitude ranges from 232 to 1152 feet. Vernon was founded September 3, 1753, and organized in 1802. The Town is governed by a five-member Selectboard and the town school is operated by a Board of five School Directors. The first and only nuclear power plant in Vermont was located in Vernon and ceased operation in December of 2014. Vernon is also home to The Vernon Hydroelectric Dam, constructed in 1908. The Town remains largely agricultural-residential. Other businesses include a sawmill, a rock quarry, several gravel pits, a concrete plant, a wood chipping plant, a wood mulch plant, regional excavation and construction contractors, and service businesses.

Purpose of the Town Plan

Development activities are frequently irreversible. The Vernon Town Plan is designed to chart a course for development that will benefit the Town and its future generations, thereby avoiding actions which cannot be adequately corrected. The official adoption of this Plan represents a conscious community decision about the Town's future character, priorities for land use, and conservation of natural resources. In addition to guiding the town's future actions, the Plan helps ensure the town's desires are observed in state-level planning and regulatory (Act 250, Section 248) processes.

The Town Plan reflects the collective values and goals of the Town's residents and provides guidelines to ensure that the decisions made at the local, regional and state levels are in concert with these values and goals. The Proposed Land Use map depicts the Town's vision of the desired future of Vernon. It, in conjunction with the goals and policies in the Plan, is a tool for Vernon to guide development and protection of valued resources. The Planning Commission cannot predict a fixed plan for the indefinite future. Therefore, the planning process must be continuous so that the policies will evolve to guide the Town's development and utilization of its resources.

2 - STATEMENT OF OBJECTIVES, POLICIES, AND PROGRAMS

The Objectives of the Vernon Town Plan are stated below. Individual chapters have goals, policies and recommended actions.

1. Accommodate the changing needs of the Town through a continuous and comprehensive planning program;

2. Provide for a variety of land uses that will allow the blend of rural, residential, scenic, agricultural, commercial and industrial as is presently the character of the Town;

3. Manage Vernon's growth to a level that prevents uncontrolled development and that is consistent with Town's ability to provide for satisfactory educational, highway, public safety, and other services;

4. Ensure that the basic needs of health, safety, education, welfare, and housing will be met and maintained at satisfactory levels;

5. Encourage compatible and coordinated development activity that will allow the blend of rural, residential, scenic, agricultural, commercial and industrial uses to enhance public and private investments;

6. Encourage the continued use of lands for agriculture and forestry in order to keep these resource areas available and to help meet existing and future needs for food, forage and fiber, to preserve the rural character of the Town, and to provide for diverse economic opportunities in farming and forestry;

7. Protect the present character of the Town through thoughtful management and guidance of new development;

8. Provide for conservation of the Town's natural resources and the protection of sensitive areas in order to ensure continued availability of a sound resource base for the enjoyment and well-being of all Vernon residents and future generations;

9. Protect areas of special educational and scientific value and to conserve sites and structures of historical and architectural significance;

10. Encourage the development of those industrial and commercial activities which are compatible with the Town's rural character;

11. Require that, where possible, public utilities and transportation facilities combine the use of corridors in order to minimize the impact on the environment and to promote desired development patterns;

12. Ensure that any project that will increase the capacity of any existing town highway or the development of any new highway will be consistent with the general character of the Town while perpetuating the quiet, picturesque and rural nature of the town of Vernon; and

13. Direct federal and state agency review and permitting processes to protect Vernon’s interests.

Structure of the Town Plan

The Town Plan is comprised of goals which provide a direction for the future. Goals are given definition through statements of policies and recommendations. The policy statements establish guidance for the Town in order to achieve the desired quality of life.

Town policies and recommended actions shall also provide guidelines to the Town Planning Commission and Vernon Selectboard in developing subdivision criteria and other Town ordinances and permits; to guide the Windham Regional Commission and state agencies in their planning efforts. These policies will further assist the District 2 Environmental Commission in judging applications submitted under Act 250 and the Public Service Board in judging petitions submitted under 30 V.S.A. § 248. Finally, these policies will help to guide those interested in subdividing and developing land in the Town of Vernon.

3 - COMMUNITY PROFILE


Pond Road Chapel

Vernon Town History

The area of Great Bend in Vernon, VT, and Hinsdale, NH, where the Connecticut River makes a broad turn at Coopers Point almost back upon itself, is the site of today's Vernon hydroelectric dam. Where the Vernon dam now stands was an ancient fishing ground at Coopers Rock, the beginning of a 12-mile stretch of swift water upstream where migrating fish such as salmon, shad, sturgeon, herring, and eels were harvested. Agricultural fields and gardens were planted on the rich, alluvial plains of the meadows, with in-ground storage bunkers at the edge of the rising terraces, and dwellings close by. Wetlands at the river's edge and upland forests provided food, medicine, and materials for everyday living.

Today's Governor Hunt Road traces the trail that connected the settlement areas in the valley. Directly across the river in Hinsdale is the well-documented location of the 1663 Sokoki Abenaki palisaded village known as Fort Hill, built to shelter the Abenaki residents from Iroquois attack.

With the arrival of Europeans, the most easily worked lands were the first occupied by the colonizers. In the 1730-40's the first settled area was the stretch of fertile meadow just below the dam (Stebbins Road area) to just above the VY plant (Forts Sartwell and Bridgman).

With the building of the Vernon hydroelectric dam in 1909 and the impounding of the Connecticut River, the average level of the resultant pool was raised 30 feet. Hundreds of acres were flooded, including much of the fertile bottomland meadows; areas that had been used for subsistence and cultural activities for thousands of years. Other Native American areas in Vernon are still above the river surface. A number of these, including burials, encampments, and settlements, are documented in the Vermont Archaeological Inventory (VAI), and its New Hampshire equivalent. The VAI records are kept confidential because of the threat of disturbance by looters and collectors, but are accessible by qualified professionals for research and to flag possible impacts by proposed development.

A township was granted in 1672, the northwestern part of which eventually became Vernon. It was first named Squakheag after the local Native American tribe and later re-named Northfield, Province of Massachusetts Bay.

In 1724 Fort Dummer was constructed, the first permanent European settlement in present day Vermont. Located just to the north of present day Vernon, Fort Dummer was built by the Province of Massachusetts as protection for the settlers of Northfield due to the conflict between Native Americans and the first settlers.

A series of smaller fortifications or blockhouses were constructed on both sides of the river between Fort Dummer and Northfield in the late 1730s and early 1740s. Josiah Sartwell and Orlando Bridgman were two of the first inhabitants who constructed blockhouses several miles south of Fort Dummer. Many of these settlers were Massachusetts colonial soldiers and their families originally garrisoned to protect Northfield from Native American incursions.

The town of Hinsdale was chartered September 3, 1753, and it included land on both sides of the Connecticut River. The charter was altered and another issued, Sept. 26, 1753 by which the grant was divided into two towns named Hinsdale. The first town meeting of present day Vernon was held the day before and Orlando Bridgman was appointed town moderator and elected treasurer. Ebenezer Hinsdale was elected town clerk.

Many of the early settlers of Vernon were veterans of the wars between Great Britain and her colonies as well as the French and their allied Native American tribes in the 1740s and 1750s. Prior to 1760, and Great Britain's defeat of France in North America, the constant threat of Native American raids slowed permanent settlement of southern Vermont. In 1760, settlement began in earnest in Vernon along the river. Joseph Stebbins, Samuel Stratton, Eleazar Patterson, Amos Tute and others constructed residences during this time period. A large proportion of these settlers immigrated from Northfield and Northampton, Massachusetts.

The New Hampshire Grants expanded between Lake Champlain and the Connecticut River in the 1750s. Soon after, the territory of Vermont was claimed by the Province of New York. A struggle between the Provinces of New Hampshire and New York was not settled until 1764, when it was decided by King George III in favor of New York. The west bank of the Connecticut River was declared the western boundary of New Hampshire. The west part of Hinsdale was now in New York while her neighbors across the river remained with New Hampshire. The population of the town was about 100 inhabitants by then.

By the 1780s, the population had increased to over 400 residents, with most of the newer settlers coming from Western Massachusetts and Connecticut. New settlers by the names Jesse Lee, Eliakim Stebbins, Ebenezer Scott, Nehemiah Houghton, and the Hunt brothers, Jonathan and Arad, constructed residences in Vernon. The Hunt family was actively involved in land speculation and politics in the new Republic of Vermont and at the time owned thousands of acres of land in Vermont granted by the governors of both New Hampshire and New York. The Hunt brothers along with John Bridgman served as town representatives to the emergent Vermont republic.

By 1789 the State of New York acknowledged the independence of Vermont, thus paving the way for Vermont to enter into the United States as the 13th state in 1791. John Bridgman, son of Orlando Bridgman, not only served Vernon as a representative, but also, for many years, was a county court judge, the Town Clerk and also was commissioned as Justice of the Peace. His house, located close to the location of the old fort, burned on June 11, 1797 where the flames claimed not only Vernon's earliest land records, but also the life of his daughter, Miranda.


George's Mill

Throughout the 1700s, by diversity of claims and boundary lines, Vernon was successively in Northfield, Massachusetts (1672), Hinsdale, New Hampshire (1740), Hinsdale, Cumberland County, New York (1764), Hinsdale, Republic of Vermont (1777), Hinsdale, State of Vermont (1791). At the Town Meeting of 1802 residents suggested that the town be named "Huntstown", honoring a distinguished resident, Lieutenant Governor Jonathan Hunt. His wife Lavinia, however, suggested it be called Vernon, after the British Admiral

Edward Vernon, friend of the George Washington family, and for whom Washington's home Mount Vernon was named. Thus, Vernon became the only town in Vermont named by a woman.

The population of Vernon climbed from about 500 at the turn of the 19th century to over 800 in 1850. With the advent of the railroads and the opening of the West, the population of Vernon, as well as other communities in New England, began to decline. However, Vernon was more fortunate than other New England towns as it possessed more flat, fertile land better suited for agricultural production than many other communities, as well as a transportation network composed of the Connecticut River and the new railroad. Even so, it was more than a century before Vernon's population exceeded 800 people once again.

Through the changes of the 1800s, Vernon remained an agricultural-based community with some commercial enterprises and light industry. Agricultural products were diversified and small industry was usually home-based. Many residents supplemented farming income by performing a trade, such as blacksmithing, butchering, carpentry, or making products like shoes or clothing. Farming consisted of growing diversified crops such as rye, oats, beans, potatoes, corn, and apples. Livestock such as sheep, hogs, chickens, dual-purpose cattle, and horses were raised for meat, eggs, and dairy products. Cash crops such as tobacco and hops were also grown. There were a number of grist and saw mills in town along with a cider mill. There was also a brickyard in South Vernon.

A stage route ran through Vernon from Worcester, Massachusetts, to Keene, New Hampshire, and to Brattleboro, from 1837 until about 1861. The Vermont and Massachusetts Railroad began operation in Vernon in 1849. Train depots opened for business in South and central Vernon. This led to a stimulation of commercial growth, somewhat making up for a loss in population.

A number of Irish immigrants moved to town to work for the growing railroad industry. The Vernon Hotel was built in 1850 in the center of town by Jarvis F. Burrows. Later, at the south end of Vernon, The South Vernon House was built in 1872.

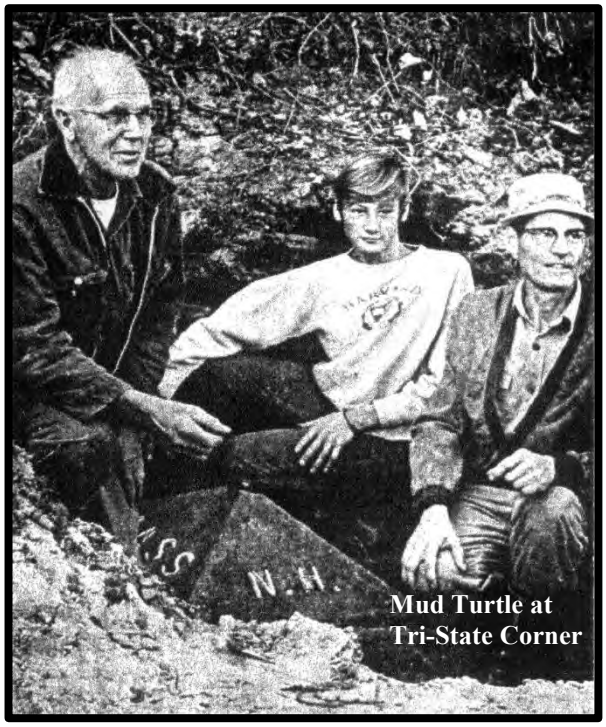
The 1890s saw a shift in farming from diversified crop and livestock production to an emphasis on dairy farming. Cream was shipped in cans via rail to Springfield, Massachusetts and other urban areas to the south.

In 1909, the Vernon Dam began to provide electricity to meet increasing demand for energy used by manufacturing centers in Massachusetts. At the turn of the century, it was recognized that there was a need for alternative forms of energy to supplement expensive coal-based steam generation.
In 1959 Interstate 91 reached southern Vermont, spurring tourism for the state and eventually new permanent residents. Vernon, for better or worse, did not receive an entrance or exit ramp to the highway and as such was somewhat insulated from the influx of tourists and immigrants.

Vermont Yankee Nuclear Plant began construction in 1968. It went online November 30, 1972. The new power plant had a profound impact on the town by contributing both tax money and skilled new residents who became involved in civic affairs of their new town. Vermont Yankee ceased operations at 12:12 pm on December 29, 2014.

Tri-State Marker

New Hampshire claims all of the Connecticut River along the VT - NH border so the tri-state point should be at the low-water mark, at the MA line. It is, but now it is under water because the water level was raised in the 1960s, when the height of a dam downstream in Turner's Falls, MA was raised. Set high on the bank, above the river, is a large granite monument inscribed, "ERECTED BY THE STATES OF MASSACHUSETTS, NEW HAMPSHIRE AND VERMONT, 1897". But there is indeed a tri-state marker in the river.



Mud Turtle at Tri-State Corner

The photo to the left shows Willis Parker, Paul Murray and Ernest Murray who uncovered the "Mud Turtle" with the aid of Robert Johnson, surveyor, in Oct, 1969. This marks the precise spot in the Connecticut River where New Hampshire and Vermont meet Massachusetts. The boundary is beneath river waters and was seen beneath the sandy river bottom when the river was lowered for work on the Turners Falls dam. High on the bank stands a dignified polished granite marker featuring the official location of the "Mud Turtle". Photo from the Rivertown Review, Northfield, MA, 1973.

Population Trends and Projections

After three decades of steady population growth, Vernon has seen a decrease over the last seven years. The decline in growth was predictable when considering the loss of jobs at the Vermont Yankee Nuclear Power Plant, which employed 78 Vernon residents at the time of its closure.

Vernon's population declined 7% between 2010 and 2015 from 2,206 to 2,055, a higher rate of decline than Guilford's 1% decrease (from 2,121 in 2010 to 2,093 in 2015), while at the same time Brattleboro's population decreased by 2% and Windham County decreased by 3%.

Vernon's population was 4.7% of the region's 43,275 people in 2015, while Guilford's population accounted for 4.8%, and Brattleboro's was 27.4%.

Table 3.1 Population Distribution

						% CHANGE			
Age	1980	1990	2000	2010	2011-2015 Est.	1980 -1990	1990 - 2000	2000 - 2010	2010-2015 Est.
< 18	338	495	583	546	440	46 %	18 %	- 6 %	-19%
18-64	605	1,087	1,270	1,267	1,171	80 %	17 %	0 %	-8%
65+	232	268	288	393	444	16 %	7 %	36 %	13%
Total population	1,175	1,850	2,141	2,206	2,055	57 %	16 %	3 %	-7%

SOURCES: VT State Data Center (2010), U.S. Census, SF3 (2000), STF3 file (1980 and 1990), 2011-2015 American Community Survey 5 yr. Estimates

A Note on Census Data and the American Community Survey

Among various sources for data used to inform the Town Plan, two are the US Census and the American Community Survey (ACS). These data do not always match precisely, largely because they are generated using different methodologies and timeframes. The Census is conducted once every ten years and collects "point-in-time" data. The ACS is conducted year-round and gathers "period" data that generate rolling five-year estimates; they do not reflect actual counts such as population, age, or sex. The estimates can be useful when analyzing trends, but should be used cautiously when making comparisons. ACS data inform the discussion in the Town Plan, but the estimates have relatively large margins of error and should not be interpreted as precise numbers.

Income Trends

The average income of Vernon Households between 2008 and 2012 was $61,399; however 21% of households earned less than $35,000/year and 8.8% of the town's population was below the poverty line for that same period, an increase of 3% from 2000. Nearly 4% of the population was employed by Vermont Yankee at the time of its closure (where the average wage was over $100,000/year) likely changing the current income landscape.

In the 2016-2017 school year 38.1% of Vernon Elementary School Children were on free or reduced lunch. This is down from an 8 year spike of 41.5% in 2015-2016 but significantly higher than an eight year low of 28% from 2012-2014. See Table 2.

Table 3.2. Free & Reduced Lunch at Vernon Elementary School

	Vernon				
Year	Total Enrolled	FRL	% Vernon	% State	% District
2009-2010	164	53	32	35	37
2010-2011	160	55	34	37	37
2011-2012	154	51	33	39	41
2012-2013	165	46	28	40	41
2013-2014	185	52	28	41	46
2014-2015	176	60	34	39	43
2015-2016	159	66	41.5	38	44
2016-2017	168	64	38	39	44

Source: State of Vermont Agency of Education School Reports

Recommended Actions:

1. The Town should monitor the rate of development of new housing units through a periodic review and evaluation of new Wastewater and Potable Water Supply Permits issued by the state.
2. Applicants for development and large subdivisions should be required to disclose their best estimates of growth in population closely related to the impact of their development proposals as part of the Act 250/§248 processes.

4 – POST VY RESILIENCY PLAN

Goal
Prepare for and promote the decommissioning of the Vermont Yankee site in a manner that is conducive to the health and safety of Vernon residents while driving plans for redevelopment of the site.

Narrative
In the final months of 2014 Entergy Vermont Yankee permanently ceased operation. In the subsequent two years over 450 employees left the power plant; 85 of them lived in Vernon. Many families relocated. Skilled labor left for comparable jobs in the nuclear field, and some families have remained with "weekend" parents, struggling to maintain a home in Vernon while working in power plants far away. Housing values have decreased (see housing chapter), leaving many residents with mortgages higher than market value.

Although a significant amount of property at the Vermont Yankee site will remain unavailable for redevelopment, Entergy has worked closely with the Planning and Economic Development Commission to ensure that land becomes available for productive use in a safe and expeditious manner. Vernon is challenged with finding responsible development projects that will encourage skilled workers to remain in town while increasing the depleted tax base.

The Town Plan preceding this one highlighted the need to revisit planning in order to address decommissioning plans outlined and finalized by Entergy. This plan includes contingencies based on information currently available in that regard.

Tax Stabilization – Policy 4.1: As recommended in the preceding Town Plan, a Tax Stabilization Agreement was reached with Entergy to ensure a gradual decrease in their tax contributions to the Town of Vernon during the onset of decommissioning. Following is the tax schedule contained in that agreement.

Table 4.1 – Tax Stabilization Agreement Payment Schedule

Fiscal Year	Annual Payment
2016-2017	$750,000.00
2017-2018	$600,000.00
2018-2019	$450,000.00
2019-2020	$400,000.00
2020-2021	$400,000.00
2021-2022	$400,000.00

Other notable components of the agreement include:

1. The Town shall bill the Statewide Education Tax pursuant to 32 VSA § 5402 and Vermont Yankee shall pay said Statewide Education Tax based on the education grand list value of $78,000,000.00 for the term of the agreement.
2. Taxes are paid in three installments.
3. The agreement is transferrable to subsequent owners of the property with Town approval.
4. The agreement covers all Entergy owned properties inside and outside of the Vermont Yankee perimeter fence.

Recommended Actions:

1. The Town should continue to monitor closely the process of decommissioning Vermont Yankee, including being represented on the Vermont Nuclear Decommissioning Citizens Advisory Panel (NDCAP), and making periodic reports to NDCAP.

2. The Town should obtain intervenor status in any relevant regulatory cases before the Vermont Public Utilities Commission (PUC), and if appropriate, before the U.S. Nuclear Regulatory Commission (NRC) and other entities with authority over the decommissioning process.

3. The Town will continue to pursue the goals it has stated in testimony to the PUC's Docket No. 8880 (which concerns the transfer of ownership of VY to NorthStar Group Holdings, LLC), which requests the PUC to impose the following conditions on the sale and on the decommissioning process:

    a. The Site should be remediated as to all contaminants, not just radioactive, to support use of the property consistent with the current version of the Town Plan. As stated in the *Vernon, Vermont 2013 Town Plan:* "The Town should pursue discussions with appropriate representatives of Entergy-Vermont Yankee regarding the possible re-use of the power plant site for commercial and industrial development following decommissioning." Exh. VRN-RS-1 at 10; See also Exh. VRN-RS-2 (Town Plan Future Land Use Map, showing Vermont Yankee Site as "I-Industrial").
    b. The Town does not wish to have the site returned to a natural state, or otherwise restricted for conservation purposes unless, as stated above, the Town is provided the opportunity for meaningful input on which portions of the site might be appropriate for such restriction.
    c. The Town desires to have the option to acquire the historic "Governor Hunt House" property for $1.00, free and clear of any use restrictions, legal encumbrances, or contamination. This structure represents a vital part of the Town's history.
    d. Reimbursement of the Town's reasonable legal and expert witness fees incurred to participate in this proceeding.
    e. During the time of its operations in Vernon, NorthStar will become a partner with the Town in developing its visions for the future of the Town, including without limitation the Town Plan.
    f. Reimbursement for increased costs incurred by the Town due to the decommissioning process (for example, increased need for police or fire department personnel, services or equipment; and increased costs relating to road repairs caused by heavy equipment and increased truck traffic).
    g. Extend the term of and/or renegotiate the current tax stabilization agreement, at a comparable funding level, for the duration of the decommissioning.
    h. NorthStar will facilitate access across its properties for possible public future riverfront access and recreation purposes.


Town Meeting

i. NorthStar shall give consideration to local businesses, services and resources for use in decommissioning projects.
j. The Town desires to have the option to acquire or use the following critical infrastructure important to the Town for redevelopment purposes:
    i. Office buildings on the property
    ii. Existing septic fields
    iii. Existing wells
    iv. Existing rail spurs and rail buildings
    v. Existing roads and parking areas.
    vi. Access to the power line running from the hydro plant
    vii. Access to VELCO connection at the switchyard
k. The Town desires to have the option to acquire and preserve artifacts from the plant demonstrating the site's history.

4. The Town should work to obtain unconditional release, as early as possible, of as much of the Vermont Yankee (VY) property as possible outside of the protected Independent Spent Fuel Storage Installation (ISFSI).

5. Working through Vermont's Congressional delegation, the NRC, and Vermont state agencies and officials, the Town should support efforts to move forward with a national long term storage solution for spent nuclear fuel, or a consolidated interim storage facility, in accordance with the statutory obligation of the federal government to move spent fuel from local storage facilities to a permanent repository.

6. Also working with the Congressional delegation, the Town should push for passage of legislation such as the Stranded Nuclear Waste Accountability Act (H.R. 3929 introduced in 2017) that would compensate municipalities such as Vernon that are required to host ISFSIs in the absence of a central storage solution, and any other legislation that would benefit communities that host nuclear power facilities.

7. When the current tax agreement between the Town and VY expires in fiscal year 2022, any replacement agreement should provide the Town with the opportunity to separately tax the ISFSI and the individual dry casks of spent fuel located there.

8. The Town should continue to fund its Professional Services Fund, maintaining a balance that is sufficient to pay for any foreseeable needs for legal representation in regulatory actions or litigation relating to Vermont Yankee, and for any lobbying efforts related to the above recommendations.

9. The town should work with the owners of VY to maximize opportunities for economic re-use of the VY property as early as possible during and after the decommissioning process. Any re-use of the VY site should be compatible with the planned development of the Designated Village Area immediately to the west of the site.

Vernon Fire and Rescue

5 - ECONOMY

Goal
To encourage responsible economic growth that increases the tax base and encourages job creation while protecting the rural, agricultural character of the community.

Employment and Economic Base
According to Census data, the population of total workers 16 years of age and older increased steadily from 504 in 1980 to 1,132 in 2000. There was a slight decrease to 1,099 between 2000 and 2010. Between 2014 and 2016 315 jobs were eliminated due to the closing of Vermont Yankee. 90 local families were directly affected by loss of employment at the plant, indicating an increased need for employment for the population aged 16 and over.


Dry Storage Casks at Vermont Yankee Site

Economic Growth
Of significant importance to many of Vernon's residents today is the rather unique situation, which faces the community in the years to come. The Vernon community will be challenged with the task of reevaluating its level of municipal spending and with identifying alternative means of generating local tax revenues in order to offset the decrease in Entergy NE/Vermont Yankee's sizeable contribution to the Town's tax base.

Because of the need to stabilize the local tax base and to continue to provide employment opportunities to Vernon's residents, the Town would benefit from additional industrial and commercial activities in the future. Of great concern, however, is that new industrial and commercial growth relates satisfactorily to the rural agricultural-residential character of the community. The protection of Vernon's rural character and agricultural resources should be an important consideration in planning for the future of Vernon. The Farmland Protection Advisory Committee has received funding and support at Annual Town Meetings and continues to increase its procurement of development rights in an effort to protect valuable farmland.

Policy 5.1: Foster responsible economic development in concordance with recommendations in the adopted Town Plan.

Recommended Actions:

1. Establish a state designated Growth Center to promote industrial development on the Vermont Yankee site.

2. The Town should consider the formulation of an industrial development plan including the potential social, physical, and economic impacts of an industrial park on the community in terms of effects on the environment, residential development, public facilities and services, and on the local tax base.
    a. The industrial development plan should establish performance standards that address potential, adverse, environmental impacts including, but not limited to excessive noise, odor, dust, smoke, vibration, glare, water pollution and other nuisances, design standards should be implemented regarding access and parking, landscaping, screening setbacks, height limitations, signage, and exterior lighting.

3. The Town should control the location and aesthetic quality of future agricultural, commercial and industrial development in order to minimize conflicts with surrounding uses.

4. The Town should continue discussions with appropriate representatives of Entergy-Vermont Yankee and/or future owners of the site regarding the possible re-use of the power plant site for commercial or industrial, development following decommissioning.

Fiber Optics

The Planning Commission supported the work of a Fiber Optic sub-committee in 2017 to explore the viability and necessity of town-wide, fiber optic networking. This project would include 32 miles of fiber optic wire to serve 900 homes.

The Fiber Optic Committee concluded that town-wide fiber optic is not currently economically feasible or widely needed considering existing access to alternative high speed internet providers.

The Planning Commission will continue to look at technological advancements in communication.

Policy 5.2: Support the availability of fast, reliable, inexpensive broadband town wide.

Recommended Action:

1. The Town should periodically review alternative high speed broadband access, such as fiber optic, as technology evolves.


Knitting Club

Childcare

This Plan recognizes that the accessibility, affordability and quality of child care in the area affects parents' ability to enter the workforce, be productive while at work, and remain employed. It also notes that the child care industry itself contributes to the local economy, through the jobs it sustains, the revenues child care workers take in, and the taxes they pay.

Child care, in this context, encompasses children ages birth to twelve.[1] Ensuring accessible, affordable, quality child care is

[1] In conformance with the Vermont Child Care Services Division definition of child care.

integral to sound economic development planning. Recognizing the reality that most families lead lives that require full or at least part-time child care outside of their homes, this Plan recognizes child care as an important community need and offers guidance on how to plan to meet the need.

There are several childcare programs in Vernon. The Recreation Department offers a preschool program for 3-4 year olds in the Vernon Elementary School during the school year. There is also an after school program at the elementary school. In the summer there are camp programs at the Recreation Area. There is currently one (1) licensed, home-based childcare program located in Vernon.

Policy 5.3: Foster the availability of safe and affordable child care and integrate child care issues into the planning process.

Recommended Actions:

1. If local information about child care supply and demand is not adequate (including infant, toddler, and preschool age care) then the town should consider conducting a childcare needs assessment.

2. The Town should maintain an inventory of all childcare programs in the town and their capacity. The local childcare resource and referral agency can provide a list of state-regulated family and center-based childcare programs, and their capacities (www.buildingbrightfutures.org). To the greatest extent possible, the town's inventory of childcare programs should include unregulated childcare programs, including those providing care for children of not more than two families that is exempt from licensure in the state of Vermont. Also most summer camps and recreation activities are exempt from licensure. It also would be prudent to share this information with the fire department in case of an emergency.

    a. In April of 2016 there were two (2) registered child care/preschool programs in the town of Vernon with a total capacity of 50 children ranging in age from infant to school age.

Corn Stand on Bridgeman Road

6 - EDUCATION

Goals
To provide access to primary and secondary education for every child in Vernon and encourage the pursuit of post-secondary education at all ages.

School
Education is probably the single most important community service provided by the Town of Vernon, in terms of both expense and social benefit. Vernon Elementary School is a large (57,000 sq. ft.) brick building situated on 10 acres of land on Governor Hunt Road. The school contains 15 regular sized classrooms, as well as smaller classrooms for Chapter One, Speech, and Special Education. In addition to classrooms, the school also contains a guidance room, music room, art room, gymnasium, media center, computer room, cafeteria with stage, teachers' work room and lounge, principal's office, secretary's office, director of recreation's office, custodial work room and office, as well as a large kitchen with walk-in cooler and freezer, food storage room and office. A separate large storage shed is used for larger equipment and some recreation equipment storage. There is a baseball diamond with backstop, scoreboard, bleachers and protective fence located at the rear of the school property and is maintained jointly by the school and recreation department. The school has two well-equipped playgrounds and two parking lots.

The Recreation Department offers a preschool program for 3-4 year olds in the Vernon Elementary School. During the school year there is an after school program at the elementary school.

The Town of Vernon owns one community bus. It is housed at the Town Garage. Children are transported by contracted buses to the school.

The Town of Vernon provides school choice for grades 7 thru 12. The choices are Brattleboro Union High School, Pioneer Valley Regional High School, or the choice of any non-religious private school. Homeschooling is also an option in Vernon.

Town Library
The Vernon Free Library moved in late 1970 from its quarters in the former repurposed Center School building to the new Town Offices and Library Building where it now resides in the north wing, across from the Town Clerk's office. The Library provides many services to residents of all ages including books, DVDs and CDs, periodicals and computers with internet access through a new Fiber Optic connection completed in January, 2014. Library patrons also have access to a free digital library offering downloadable audio and e-books. Through the Library's association with the Vermont Department of Libraries, books and other items may be borrowed from libraries all over the state as well as out-of-state institutions.

The library offers a variety of programing for all ages including free computer classes, a Reading Group, Knitting Group, Cribbage Club, Coloring Club, Summer Reading Programs, Story Times, Craft Programs, Book Signings and other programs based on community desire and demand.

Childcare
Safe and affordable child care is important to local residents. There are a variety of state-regulated childcare facilities, both family and center based, located in Vernon and in nearby towns. As this Plan is being drafted, the Vermont Department for Children and Families, Child Development Division, Building Bright Futures Child Care Information System lists one (1) registered and licensed provider available in Vernon.

The local demand for childcare services is difficult to measure. In 2002 the Windham Regional Commission conducted a county-wide needs assessment. Among the findings are the following, which are still relevant in Vernon in 2017:

- According to the US Census Bureau, there was a decrease in the number of children under the age of 5 between 2000 and 2010. The American Community Survey indicates that numbers are expected to remain relatively stable through 2017, but state and national trends suggest that there may be an increase in the number of working parents resulting in an increased need for child care.
- There is a particular need to increase the availability of high-quality child care for infants and toddlers (ages birth to 2 years).


Knitting Club

Early Education

In addition to Vernon's offerings, Early Education Services in Brattleboro operates an Early Head Start program. Head Start is a national program that promotes school readiness by enhancing the social and cognitive development of children through the provision of education, health, nutritional, social and other services to enrolled children and families. The income eligibility of families is 130 percent of the federal poverty level.

Home Schooling and Private Schools

Home schooling is an option used by some families. The exact number of students being home schooled is not known so it is difficult to track changes. Parents interested in home schooling their children must have a plan approved by the state. Although the town school district does not receive funding to help educate home-schooled students, Vernon Elementary School works to assist their efforts through access to services and resources such as music, the library, and extracurricular activities.

There are a number of both primary and secondary private schools in the region, although none are in Vernon. Some Vernon students attend these schools, but the exact number is not known. Alternative High School courses are also available online.

Colleges and Adult Education

The Community College of Vermont (CCV) has a campus in Brattleboro which offers Associate degree programs and workshops. Several private and public colleges and universities are located within commuting distance of Vernon.

- Various program offered through community libraries and individual groups;
- Career-related certificate programs and non-credit programs offered through CCV
- Work readiness and literacy programs available through Adult Learning in Brattleboro; and
- Learning opportunities for people 50 and older at the Osher Lifelong Learning Institute which is located in the Southeast Vermont Learning Collaborative in Dummerston.

Policy 6.1: It is the policy of the Town of Vernon to encourage lifelong educational opportunities for the vocational and personal enrichment of all Vernon residents.

Recommended Action:

Consider the full use of present school facilities to offer adult education, information programs and physical fitness opportunities. Such activities could take place during school vacations and evenings. The use of school facilities should be made available for private activities for a fee.

7 – ENERGY PLAN

Introduction
Though Vermont's energy transformation overall may take years to implement, it will enhance the vitality of the state and local economy by reducing money spent on fuels pumped, mined or generated elsewhere, improve our health through reduced emissions and increased bicycle and pedestrian mobility options, and improve the quality of our local and global environment through reduced greenhouse gas emissions. This robust energy plan is used as a tool to advance the economic and environmental well-being of the Town of Vernon, thereby improving the quality of life for its residents. Furthermore, these energy goals will reduce Vernon's vulnerability to energy-related economic pressures and, in the long-term, climate change-related natural disasters, and promote long-term community resiliency in a variety of contexts.

The estimated energy consumption in Vernon, including residential, commercial and governmental use (for heating, electricity, transportation, etc.) is estimated to be just almost 273,000 MMBtu per year (see *Energy Costs & Expenditures* section below for a break-down of this figure). Because a large majority of this energy is imported from outside of the town and Windham Region, most of the money spent on energy does not directly benefit the local economy. Efforts to reduce the use of energy sources from outside the Town, or shift reliance to locally produced energy, can improve household financial security and strengthen the local economy.

The town hopes to create a multiple source based electricity production facility that could include the use of baseline and intermittent load energy generators for a micro grid in conjunction with intermittent (example: hydro and solar) generation backed up with battery storage. This type of multi powered electricity generation is, we believe, the best choice for a local microgrid as it can easily be upgraded to include still developing technologies.

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

1. Long-Term Vision
As nuclear powered electricity generation is no longer a factor in Vernon, it is clear that we need to replace that source in order to capitalize on the existing VELCO switchyard and other existing infrastructure as a source of economic development. While our proposed microgrid does not necessarily eliminate the use of fossil fuels over the near term, it could allow the town the opportunity necessarily to produce a baseline, reliable source of electricity. Combined with the recently emergent large scale battery backup storage technology that can be used to store both hydro and solar power, such an installation allows for the addition of more sophisticated electricity generation technologies.

Vernon will continue to examine the role of clean, alternative energy sources and support expansion when and where it is feasible.

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

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

Figure 7.1 below shows how energy consumed in the town is divided between these sectors. The sections below break down the calculations and describe the assumptions made to arrive at these final demand figures.

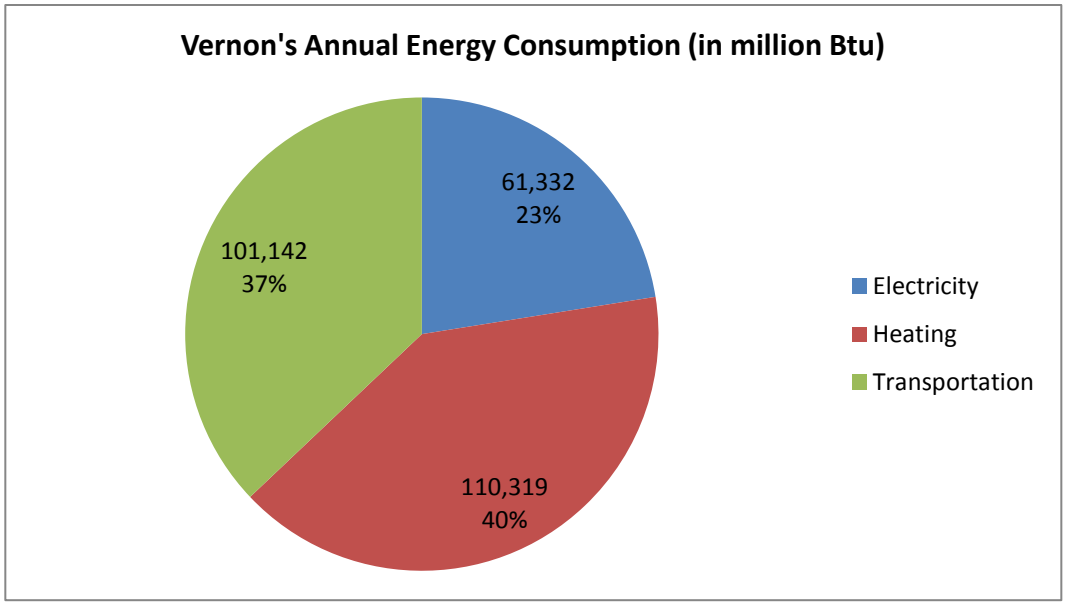


Figure 7.1: Annual estimated energy consumption across three sectors

Current Electricity Demand

The following estimates of electricity consumption data is from Efficiency Vermont, and was produced for each zip code in the state. This data set combines the energy supplied from all potential electricity providers to that town. It also separates the usage for both the *residential* and *commercial or industrial* sectors (see Figure 2 below).

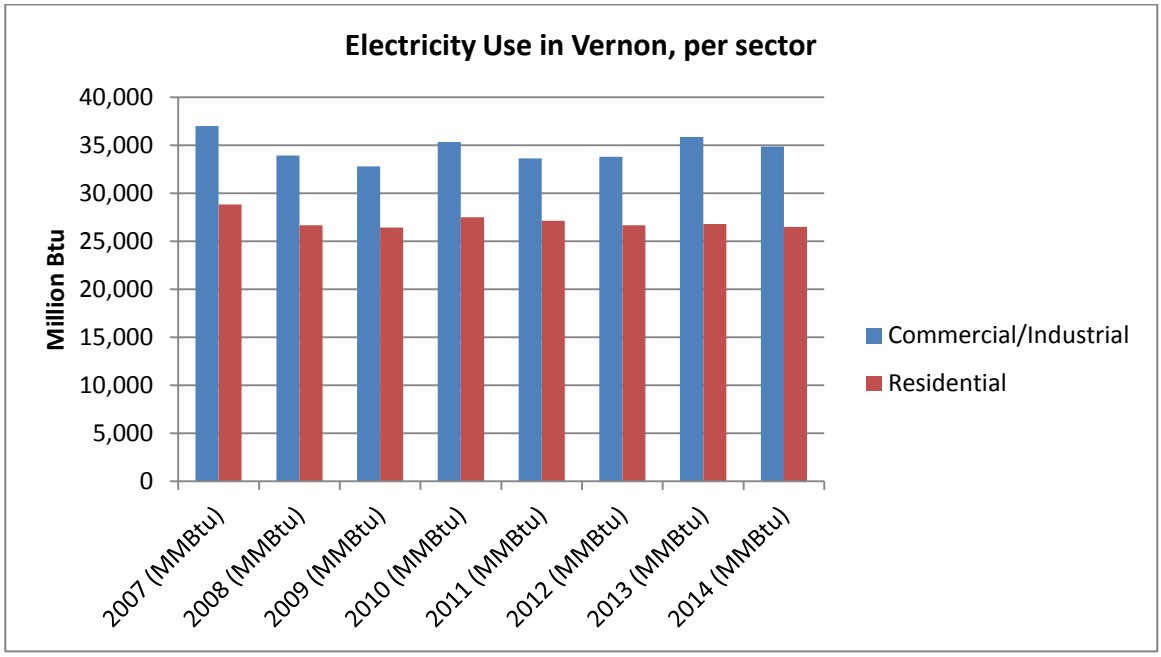


Figure 7.2: Electricity use data from Efficiency Vermont, 2007-2014.

To translate this energy demand into dollar amounts, we can estimate a cost of $0.1435 per kilowatt-hour (Vermont state average for electricity costs across all sectors in 2015). Based on the above data, residences in town paid more than $1,110,000 dollars in 2014 for 7,763,609 kWh. Commercial and industrial facilities paid just over $1,460,000 dollars for their 10,210,949 kWh of electricity.

Current Transportation Use

According to 2010 U.S. Census Bureau data, Vernon has 865 primary housing units, (not vacant or used for seasonal/recreational purposes). Based on that number of households, it can be estimated that there are 1,485 light-duty vehicles on Vernon's roads, which consume an estimated 767,918 gallons of fossil fuel each year. Below is a table summarizing the averages and estimates used to arrive at those figures.

Table 7.1 Fossil Fuel Burning sources

865	Number of primary housing units.
1,485	Number of fossil-fuel burning light-duty vehicles (LDV).
12,500	Estimate of the average annual number of miles travelled by an LDV in the area (for Vermont as a whole, total vehicle miles traveled per registered vehicle was around 12,500. The vast majority of LDV in Vermont can safely be assumed to drive between 9,000 and 15,000 miles annually).
22	Estimate of the average fuel economy of fossil-fuel burning LDV fleet in the area, in miles per gallon (state-wide average fuel economy).
767,918	Estimated number of gallons of fossil fuel consumed annually, calculated from the values above.
84,710	Number of Btu in a gallon of fossil fuel, computed as a weighted average of the individual heat contents of gasoline (95%) and diesel (5%).
99,550	This is the estimated total annual energy consumption of internal combustion vehicles in the area, in millions of Btu.

To estimate the cost of this consumed energy, we assumed a cost of $2.34 per gallon (Vermont state average in 2015). In Vernon, consumers spent over $1,790,000 million on transportation related fuel costs alone.

Current Heating Demand

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

For residential buildings, it was assumed that average annual heating load of area residences is 110 million Btu, for both space and water heating (Vermont state average). With 865 primary housing units in the town, this arrives at an estimated 95,150 MMBtu annual total heat consumption. This translates to an estimated total of just over $1,860,000 was spent in home heating (roughly $1.6 million from home owners and $260,000 from renters). Additionally, US Census data (shown in Figure 3) for Vernon shows a large percentage of Vernon's residential fuel use is from non-renewable sources (fuel oil, kerosene, etc.). There is an opportunity to improve the impact of home heating sources and costs.

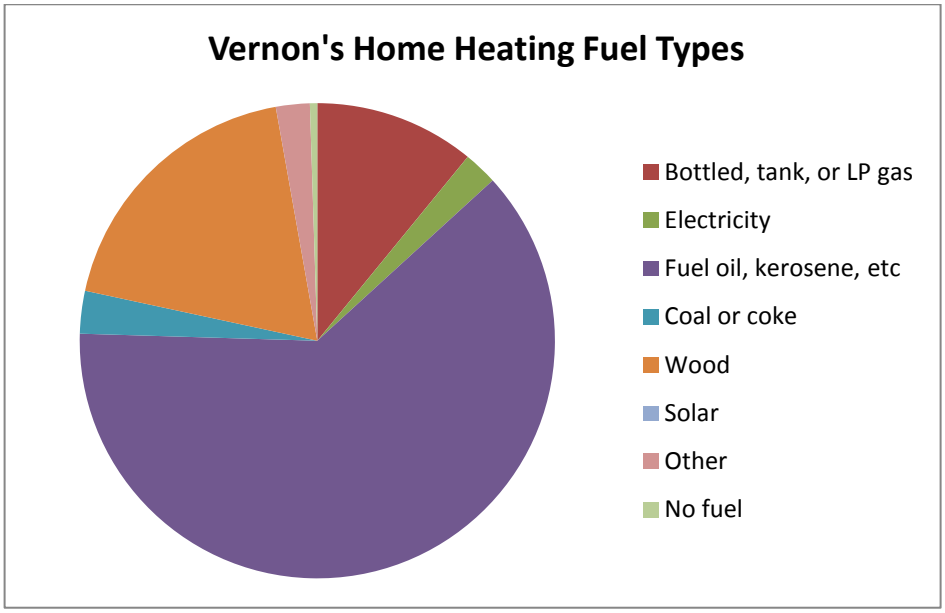


Figure7.3: Fuel sources used in residential heating, from US Census Bureau data.

For commercial establishments, it is estimated that the total heating load is about 14,258 MMBtu each year. For the state, the average annual heating load is in the range of 700 MMBtu to 750 MMBtu per year but the average for any given area is very likely to be significantly higher or lower, as the mix of businesses from region to region is highly variable. Based on the types of commercial buildings in Vernon, the heating load was calculated to be less than state average. With an estimated 33 commercial establishments accounting for this energy consumption, there is an average annual heating load of 432 MMBtu.

Total Energy Costs

In sum, Vernon pays a staggering amount in energy across the three use sectors. The total estimated cost to the town for electricity, heating, and transportation is over $6,800,000 dollars each year (see Figure 4 below). There are real financial incentives for the town to move toward energy efficiency, on behalf of both the residents and its business owners (see section "*4. Vernon's Energy Targets and Conservation Challenges*" of this plan for more detail about energy efficiency and conversion targets).

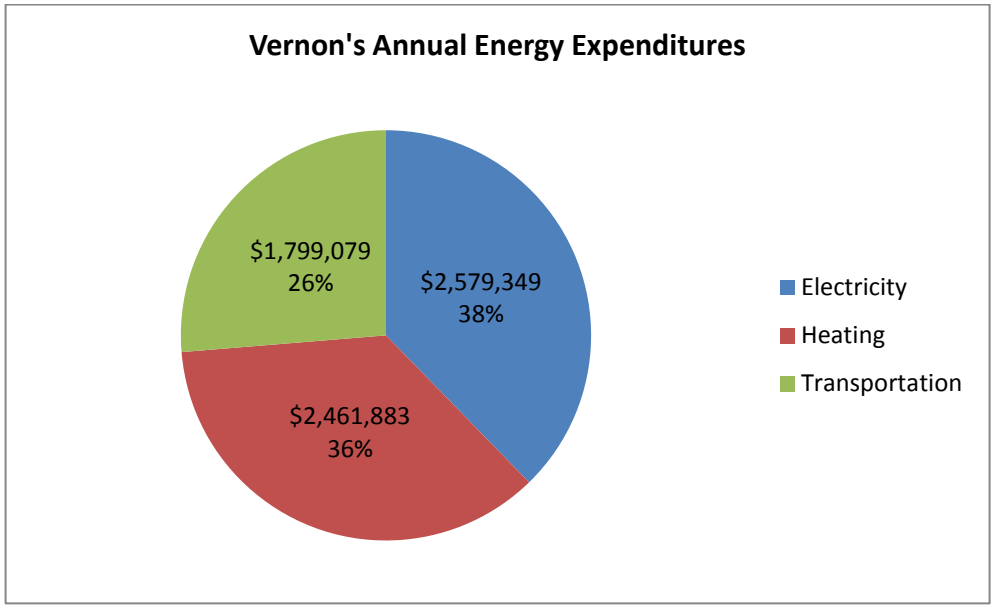


Figure7.4: Estimated annual energy expenditures across three sectors.

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

Energy resources within Vernon are all renewable resources: wood, solar, hydro, and wind. In order to reduce dependence on conventional energy sources, of which the costs and availability are outside residents' control (see the section above), the use and generation of alternative energy sources is encouraged.

Resource Mapping Process and Policy Tool

The suite of maps included with this Energy Element were developed using state-wide GIS data that modeled resource potential for solar and wind energy, identified potential constraints on renewable energy development, and created an energy potential map.

This energy potential map provides energy planners and developers with a "coarse screen" method to roughly identify areas in Vernon that may have energy generation potential. These maps are not siting maps, and further site analysis would need to be done to determine if a proposed generation facility is appropriate and comports with Vernon's Town Plan policies. Instead, these maps provide Vernon planners with tools to develop sound and informed energy generation policies within this Energy Element.

- **Solar Energy Potential Maps**

The Town of Vernon has a relatively low amount of modeled solar resource availability as compared to other towns in the region.

Regardless, the Town understands that site-level "ground-truthing" would likely yield generation potential and opportunities, and supports solar facilities that are properly sited and where the development conforms with the siting policies outlined in this Town Plan. Refer to the "*Energy Goals, Policies, and Action Steps"* section below for policy statements regarding solar generation.

- **Wind Energy Potential Maps**

While the Town will not explicitly prohibit wind turbines, the modeled wind resource area is very poor, and the raw resource that is available is suitable for only small-scale commercial or residential installations. The Wind Energy Potential map shows only "Secondary" wind generation potential (meaning, there is at least one

possible constraint to development in this resource area) in small and unconsolidated localized topographic high points. Therefore, the Town will emphasize solar and other alternative energy generation as more viable and feasible renewable energy technologies.

Residential or small-scale wind turbines may be acceptable, so long as they conform with the Town Plan for that respective land use, and do not adversely affect the surrounding landscape or communities. Refer to the "*Energy Goals, Policies, and Action Steps"* section below for policy statements regarding wind generation.

Vernon's Preferred Locations

The Town of Vernon supports locally sourced and renewable energy generation facilities in a manner that supports existing and proposed land use designations, does not adversely affect the landscape pattern or character of the Town, and supports positive community development.

Generally, the Town promotes energy generation development in locations that are previously disturbed and do not offer significant opportunities for future development. These areas may include former gravel pits, former and existing parking lots, landfills, etc. Extra consideration should be given to these under-utilized and previously disturbed areas that exist within the areas modeled to have prime resource potential (see Energy Maps), and do not conflict with existing and proposed designated land uses. Refer to the "*Energy Goals, Policies, and Action Steps"* section below for policy statements regarding preferred generation sites.

Additionally, Vernon also has a history of being a leader in Vermont's energy production. The former Entergy Vermont Yankee nuclear plant had created the valuable VELCO transmission infrastructure to and from the site, and future energy development should take advantage of this existing infrastructure so as to minimize future potential impacts of development. The 34.9 MW hydroelectric dam also produces an abundance of electricity for the state. The planned decommissioning of the VY site could offer opportunities for the town to create a microgrid utilizing the existing rail line to construct a new natural gas powered facility and transport fuel such as liquefied natural gas. The VELCO switchyard and the power line from the hydro-electric dam are other valuable assets in planning for microgrid development.

Where existing transmission infrastructure connects with generation-compatible land use districts are preferred locations for energy facilities. The Rural land use may be compatible with certain energy generators that do not adversely affect agricultural viability. Similarly, the Mixed Use, Commercial, and Industrial land uses, as described in the Land Use chapter of the Town Plan, may likely support generation facilities where there is no demonstrated or anticipated adverse effects, and when there is no conflict with other Town Plan policies.

Areas Unsuitable for Renewable Energy Siting

As shown in the Known Constraints map, there is a suite of geographic characteristic that are deemed to exclude any energy generation development. They are mapped vernal pools, Class 1 and 2 wetlands, DEC River Corridors and/or FEMA floodways, National Wilderness Areas, and State-significant Natural Communities and Rare, Threatened, and Endangered species.

The Possible Constraints are a set of data layers that don't necessarily exclude energy development, but give a signal to potential developers and planners that more site analysis may be required. These layers include hydric soils, FEMA Special Flood Hazard Areas, Protected lands, deer wintering areas, Vermont Conservation design highest priority forest blocks, and agricultural soils. If generation facilities are proposed in these areas, due diligence is required in the siting of those facilities to ensure there is no adverse effects on the landscape.

Aside from these state-identified constraints, the Town of Vernon determined that energy generation facilities are generally not compatible with the Conservation or Resource land uses, as described in the Land Use chapter of the Town Plan. These areas have very high resource value and significant natural resource barriers to development, and include lands in and around Roaring Brook Wildlife Management Area and along or near the shore of the Connecticut River.

Refer to the "*Energy Goals, Policies, and Action Steps"* section below for policy statements regarding unsuitable generation sites.

4. Vernon's Energy Targets and Conservation Challenges

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

Table 7.2 below shows the targeted percentage of consumed fuel sourced from renewable energy, across the three consumption sectors. This is in line with Vermont's renewable energy goals outlined in the 2016 Comprehensive Energy Plan.

Use of Renewable Energy			
Sector	**2025**	**2035**	**2050**
Transportation (as a percentage of total Btu's consumed)	10%	31%	90%
Heating (as a percentage of total Btu's consumed)	56%	67%	93%
Electricity (MWh to be generated in town)	*See the "Energy Generation Targets" section below.*		
The data above shows targets for the percentage of energy use coming from renewable sources for each sector at each target year. This was developed using information from the LEAP analysis (see sections below).			

Table 7.2: Percentage use of renewable energy.

Energy Generation Targets

In Vernon, it is estimated that 3,807 megawatt-hours of renewable energy should be generated each year, by 2050, to achieve Vermont's energy generation goals outlined in the 2016 Comprehensive Energy Plan. This estimated generation target serves as a starting point from which the town can develop policy to address its energy needs. Table 2 below shows the cumulative generation target amount over the benchmark years.

Vernon's Energy Generation Targets at Benchmark Years	
This is the target amount of renewable energy generation in town by 2025 (25% renewables goal), in MWh.	290
This is the target amount of renewable energy generation in town by 2035 (40% renewables goal), in MWh.	463
This is the target amount of renewable energy generation in town by 2050 (90% renewables goal), in MWh.	1,043

Table 7.3: Renewable energy generation targets at 2025, 2035, and 2050.

To translate this figure into what kinds of installations would be required, 1,043 MWh of renewable energy each year would require a total of 1,272 kilowatts capacity of solar photovoltaic installations, using the assumption that only solar energy would contribute to the overall energy generation target, not any other generation source. In reality, The Town of Vernon would accept a diversity of generators that conform to Town Plan policies, so as to create a more resilient local energy network.

On the landscape, this could mean that the town identifies 76 acres of solar-capable land. This is a very conservative figure; assuming that each mega-watt of energy requires 60 acres (on average, solar installations produce a single mega-watt over 8 acres equating to only 10 acres of actual installations). Using the 60 acres/megawatt energy production rate is for contingency; meaning that it reserves space for landowner, grid, or spatial constraints that may limit development. This ensures enough space would be delineated. If other renewable energy sources were to be used, this amount of solar photovoltaic installations would decrease. Tables 3 and 4 below demonstrate that Vernon has sufficient land to meet these generation targets.

Acres Available in Municipality for Energy Generation	
Total number of acres in town (from GIS analysis).	27,348
Total number of acres available for prime solar (with no state or local constraints).	494
Total number of acres available for residential wind (with no state or local constraints).	613
Total number of acres available for small commercial wind (with no state or local constraints).	198
Total number of acres available for utility wind (with no state or local constraints).	1

Table 7.4: Acres of available resource potential for different generation technologies.

Acres Needed for Municipal Energy Generation	
This is the estimated number of acres of **land needed for solar installations** to meet municipal targets.	10
This is the amount of land that should be **identified in plans for solar installations** (as a planning contingency).	76
For estimated solar generation, **this is the percentage of land in town needed for installations** (not accounting for potential rooftop solar).	0.04%
For estimated solar generation, this is the **percentage of acres identified as prime solar resource needed in town** for installations (not accounting for potential rooftop solar).	2.06%
This is the estimated percentage of the municipal target that can be met by rooftop solar on existing structures.	54%
This is the estimated amount of energy that can be generated from rooftop solar annually, in MWh.	891

Table 7.5: Acres needed for Vernon to meet generation target.

The tables also show that, in addition to demonstrating that only 2% of the modeled prime solar resource potential land area is needed for energy generation, it is estimated that just over half of Vernon's renewables target can be met by rooftop solar installations on existing structures. This will lead towards the Town incentivizing these types of installations, so as to minimize the amount of land area in town used for ground-mounted photovoltaic generation facilities.

Although renewable energy generation can occur in the Town and supply its residents with reliable, affordable, and clean power, the Town is challenged by the current amount of energy being consumed. In order to minimize the amount of energy generation required, the Town must first develop strategies to reduce the amount of energy consumed.

Projected Energy Use: LEAP Model Results

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

The LEAP model is used to guide the state's regions towards reducing the amount of greenhouse gas emissions and consuming 90% renewable energy by 2050 (referred to as the "90x50" goal). To accomplish the State's energy goals (as outlined in the 2016 Comprehensive Energy Plan), there are several interim benchmarks built into the LEAP model which ensure a progressive pace in attaining that "90 x 50" goal. The state energy goals are:

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

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

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

Residential Heating Conservation & Fuel Conversion

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

Figure 7.5 below shows the LEAP results for Vernon's residential heating sector. In both the Reference and 90x50 scenarios, energy consumption is modeled to decrease (on account of technological improvements, building innovation, and home efficiency improvements).

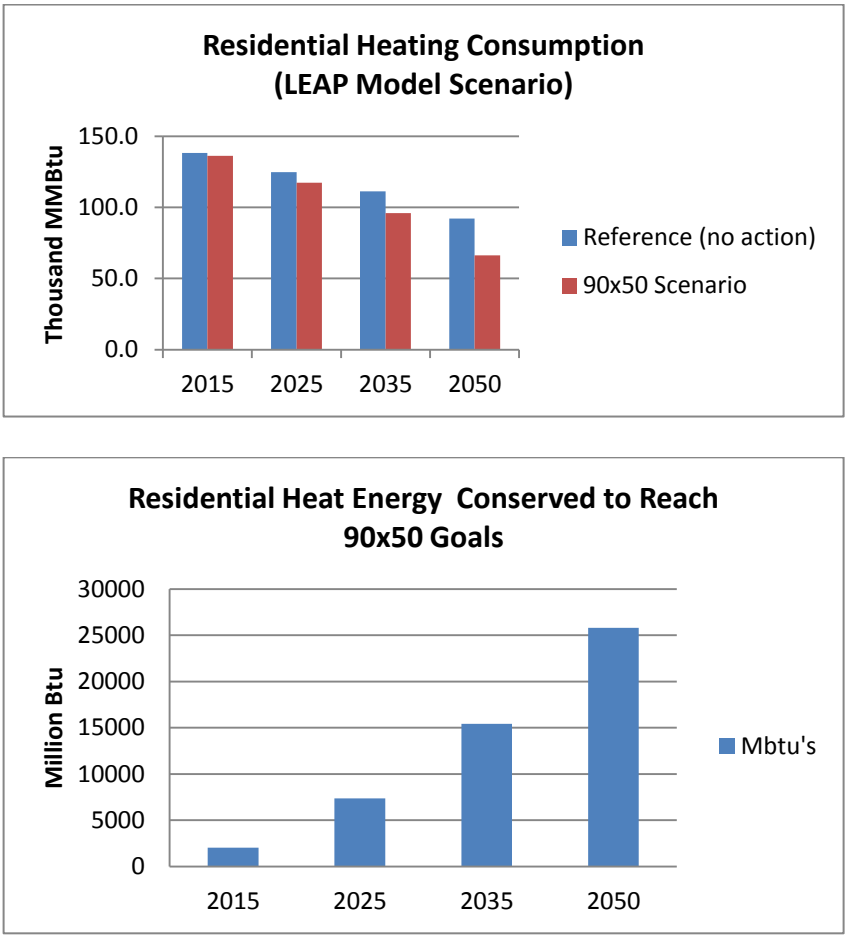


Figure 7.5: LEAP model scenario of residential heat consumption over the benchmark years.

However, the 90x50 scenario shows a sharper increase in the amount of energy conserved in residential heating. Figure 5 shows how much energy should be conserved, through 2025, 2035, and 2050, to help the town arrive at these energy goals. Not only would energy need to be solely conserved by building efficiency measures, but also fuel conversion to more efficient energy sources would be promoted.

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

Thermal (Heat) Efficiency Targets at Benchmark Years			
Use/Sector	**2025**	**2035**	**2050**
Residential thermal (increased efficiency and conservation): Percent of municipal households to be weatherized over benchmark years to meet efficiency targets.	23%	45%	92%
Residential thermal (increased efficiency and conservation): Estimated number of municipal households to be weatherized.	211	412	847
Commercial thermal (increased efficiency and conservation): Percent of commercial establishments to be weatherized over benchmark years to meet efficiency targets.	9%	16%	30%
Commercial thermal (increased efficiency and conservation): Estimated number of commercial establishments to be weatherized.	5	9	16

Table 7.6: Thermal Efficiency Targets at Benchmark Years

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

Heating Fuel Switching Targets			
Use/Sector	**2025**	**2035**	**2050**
Residential and Commercial Thermal Fuel: Estimated **new efficient wood heat systems overall** (in units) in the LEAP 90x50 scenario (this includes both wood stoves and wood pellet burners for homes and businesses). *This number may decline over the target years, which indicates an overall trend toward energy conservation and building weatherizing, which reduces the demand on heating systems.*	614	579	571
Residential and Commercial Thermal Fuel: Estimated **new wood pellet systems only** (in units) in the LEAP 90x50 scenario.	111	121	152
Residential and Thermal Fuel: Estimated **new heat pumps** (in units).	197	388	547

Table 7.7: Heating Fuel Switching Targets

Transportation System Changes

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

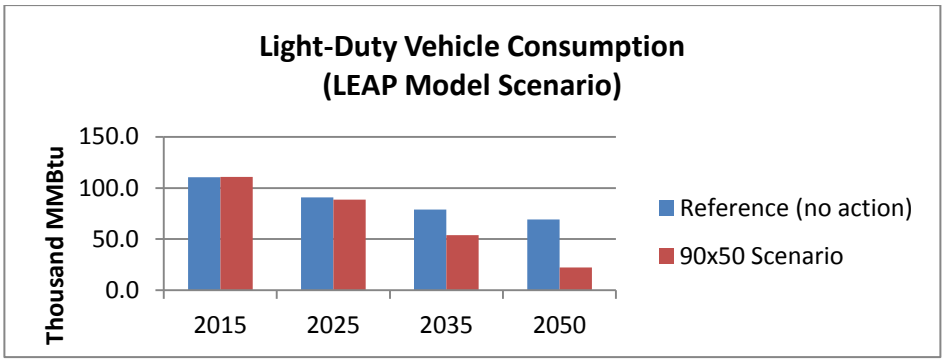


Figure 7.6: LEAP model scenario for light-duty vehicle energy consumption over the benchmark years.

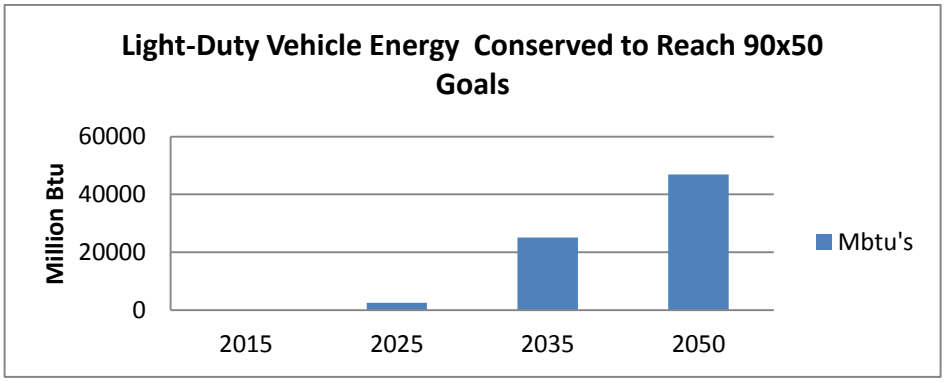


Figure 7.7: Reference vs 90x50 scenario; the amount of energy to be conserved over the benchmark years.

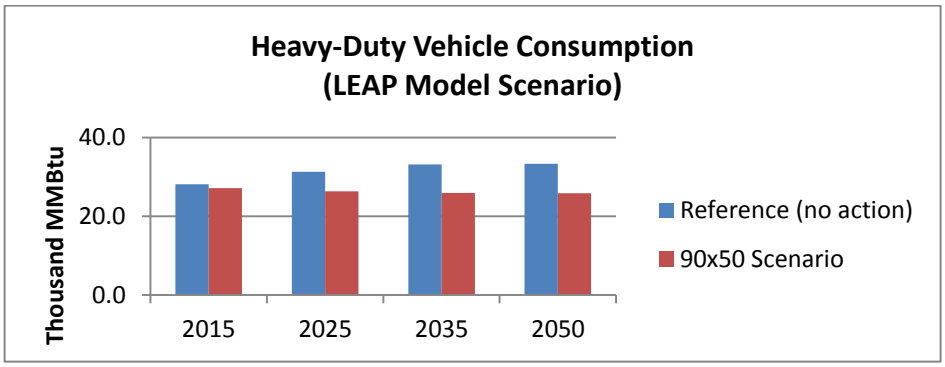


Figure 5.8: LEAP model scenario for Heavy-duty vehicle energy consumption over the benchmark years.

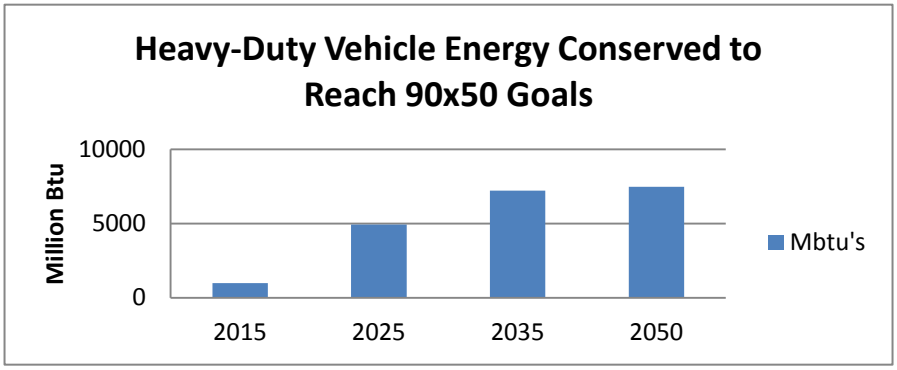


Figure 7.9: Reference vs 90x50 scenario; amount of energy to be conserved by heavy-duty vehicles.

Light-duty vehicle consumption represents a larger portion of the total amount of energy consumed by the transportation sector, and there is a large amount of energy conservation required. The LEAP model projects much of this conservation of energy comes from the electrification of the vehicle fleet, especially as market demand changes and technology improves. This reduction in gasoline consumption and electrification of the car motor comes in addition to increased cluster developments and other land use changes that improve the efficiency of our community's transportation network. The following targets for the years 2025, 2035, 2050 are set for the town's transportation fuel conversion:

Transportation Fuel Switching Targets			
Use/Sector	**2025**	**2035**	**2050**
Transportation Fuel: Estimated number of **new electric vehicles, in town.**	136	958	2,022
Transportation Fuel: Estimated number of **biodiesel-powered vehicles, in town.**	207	397	687

Table 7.8: Fuel switching targets for the transportation sector, across the benchmark years.

Heavy-duty vehicle consumption doesn't show the same curves as per light-duty vehicles, since commercial and industrial applications for this vehicle fleet isn't anticipated to change as much. However, efficiency in this sector is achieved by changing the fuel type for these vehicles from diesel to bio-diesel.

Electricity Conservation

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

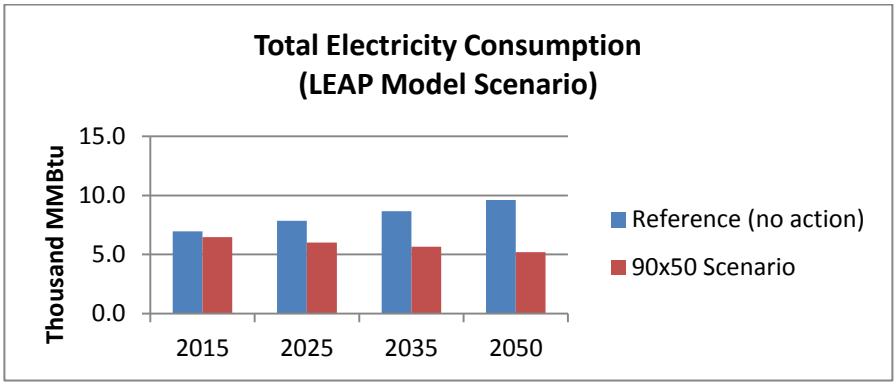


Figure 7.10: LEAP model scenario for electricity consumption.

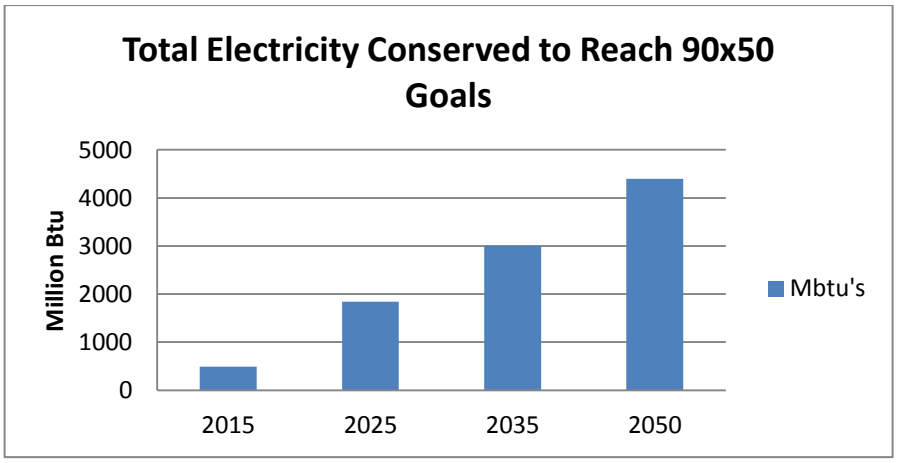


Figure 7.116: Reference vs 90x50 scenario; amount of energy to be conserved in the electricity sectors across the benchmark years.

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

Efficiency Targets at Benchmark Years			
Use/Sector	**2025**	**2035**	**2050**
Electricity: Number of kilo-watt hours to be conserved, annually, over the target years.	1,234,100	2,016,700	2,949,800
Electricity: Percentage of number of homes and buildings that will have been upgraded with electric efficiency improvements.	42%	68%	100%

Table 7.9: Electric-sector efficiency targets across the benchmark years.

Conservation and Efficiency Strategies
With total energy expenditures in the town around $8.9 million dollars (see Total Energy Costs section above), there is considerable opportunity for savings from various energy conservation and improved efficiency measures. Because most of the energy use in Vernon is for private uses (home heating, commuting, etc.), savings would accrue primarily to residents. Public education is one of the most effective strategies to bring about savings through energy conservation and improved efficiency, though there are some specific policies that can also move the community in that direction.

The following section outlines the energy policies and their association implementation action to achieve the energy efficiency and renewable generation targets outlined in the aforementioned sections.

5. Vernon's Energy Goals, Policies, and Action Steps

Goal 1: The Town of Vernon will reduce total energy use by promoting energy conservation and efficiency measures and a shift toward renewable energy sources.

Policy 7.1: Encourage appropriate energy conservation and efficiency measures and renewable energy generation by individuals and organizations through public education, awareness, and engagement.

Recommended Actions:
1. Appoint an Energy Coordinator, who will help provide resources to residents on energy conservation, efficiency, and renewable fuel options.
2. Provide information about rebate forms associated with energy conservation or renewable energy products.
3. Engage the Energy Coordinator to follow an informed, collaborative, and deliberative siting process for proposed facilities.

Policy 7.2: Support programs for insulation and weatherization of new and existing dwellings, especially for low and moderate-income households.

Recommended Actions:
1. Increase public awareness of weatherization programs.
2. Promote implementation of residential and commercial building efficiency ratings and labeling.
3. Consider adoption of stretch codes.
4. Support financial incentives, revolving loan funds, and other measures to facilitate energy conservation retrofits.

Policy 7.3: Encourage and support awareness programs on energy conservation and the availability and use of renewable and alternative fuels.

Recommended Actions:
1. Support switching to appropriately scaled wood, liquid biofuels, biogas, geothermal, and/or electricity as fuel sources, when applicable.
2. Support other suitable devices such as advanced wood heating systems and cold-climate heat pumps, or other energy efficient heating systems.
3. Identify potential locations for, and barriers to, deployment of biomass district heating and/or thermal-led combined heat and power systems.
4. Support the sale of energy-efficient light bulbs.

Policy 7.4: Commit to energy conservation in all Town properties, facilities, and vehicles.

Recommended Action:

1. Conduct an energy audit on all town properties and other facilities and prepare an energy efficiency plan that emphasizes energy reduction and efficiency as facilities are upgraded, replaced, or expanded.

Policy 7.5: Support the use of energy efficient automobiles, appliances, heating units, lighting, and other powered devices.

Recommended Actions:

1. Encourage the reduction of outdoor lighting costs by the use of energy-efficient lighting fixtures and timing devices.
2. Examine opportunities for providing home energy audits for resident and property owners so that they may take action to conserve energy and reduce related costs.

Goal 2: The Town of Vernon will work to reduce transportation energy demand and single-occupancy vehicle use, and encouraging use of renewable or lower-emission energy sources for transportation (See Transportation chapter of the Vernon Town Plan for more related policies).

Policy 7.6: Encourage the increased use of public transit, as appropriate.

Policy 7.7: Support a shift away from single-occupancy vehicle trips through strategies identified in the Transportation chapter.

Recommended Actions:

1. Examine feasibility of creating more park-and-ride facilities.
2. Promote ridesharing programs.

Policy 7.8: Encourage, through transportation policies, opportunities for walking, and cycling, or other energy efficient alternatives to the automobile.

Recommended Action:

1. Consider implementing improvements that encourage safe and convenient walking and biking.

Policy 7.9: Support the individual use of electric vehicles, instead of fossil fuel consuming light-duty vehicles.

Recommended Action:

1. Develop a plan for locating electric vehicle charging stations in Town.

Policy 7.10: Consider current and future technological advancements for fuel efficiency in town vehicles.

Goal 3: The Town of Vernon will promote appropriate land use patterns and development densities that result in the conservation of energy (See Land Use chapter of the Vernon Town Plan for more related policies).

Policy 7.11: Maintain the Town's scenic resources and Resource and Conservation Land Use Areas by siting any new commercial energy generation and new transmission facilities on land that conforms to the Town Plan's designated areas for such.

Policy 7.12: Minimize the need for new facilities and reliance on the private automobile by directing development to designated concentrated development, and limiting such development in the least accessible areas of the community.

Policy 7.13: Support land use and conservation policies that encourage ongoing forest management to maintain a local source of fuel-wood and local agriculture to maintain and increase the supply of locally produced food.

Goal 4: The Town of Vernon will locate zones and/or areas appropriate for renewable energy generation based on resource potential and development constraints.

Policy 7.14: Support appropriate renewable energy generation in Vernon, including methane digesters, dispersed small-scale wind and solar and hydro-power sources.

Policy 7.15: Support incentive programs for small-scale net-metering energy production and energy conservation for private use.

Policy 7.16: Support the preference of small-scale active and passive solar installations, specifically on rooftops, rather than larger scale ground mounted utility installations.

Policy 7.17: Support small-scale, residential wind generation facilities where there are no adverse visual, ecological, or sound affects to nearby residences.

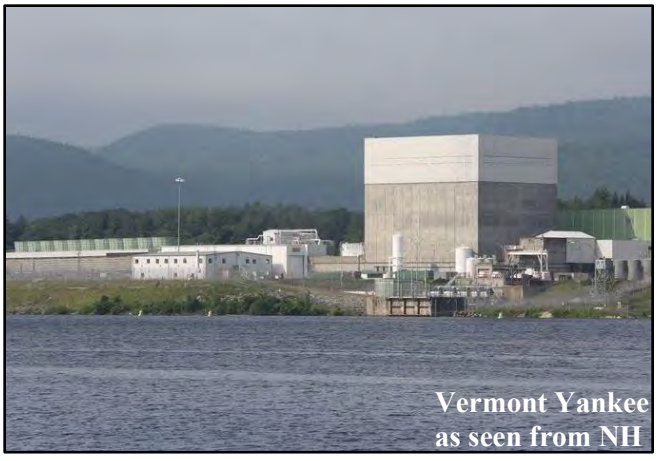
Policy 7.18: Support permit-able small-scale micro-hydro systems where there are no adverse effects on the geomorphic stability or ecological health of the respective water body.

Policy 7.19: Support methane digester installations, particularly at dairy farms when appropriate or feasible.

Policy 7.20: Properly site any industrial-scale renewable energy generation facilities in areas that conform to the Town Plan land use areas designated as acceptable for such facilities.

Policy 7.21: Encourage any potential commercial generation facilities to be within the areas deemed most suitable as described in this Energy Element and within the Energy Generation Potential maps, and maximize potential for those facilities in these preferred areas:

- Former gravel pits, quarries, or other heavily disturbed areas,
- Parking lots and gas station canopies,
- Existing commercial buildings or facilities with generous rooftop availability that is capable of hosting solar photovoltaic installations.



Vermont Yankee as seen from NH

Policy 7.22: When considering upgrades to or expansion of transmission infrastructure or 3-phase power lines, encourage the strategic development of energy generation facilities so that community centers and local businesses may benefit from the infrastructure upgrades, thereby maximizing positive community development overall

Policy 7.23: Promote the siting of renewable energy generation facilities within compatible Land use districts, namely within Mixed Use, Commercial or Industrial and in such a manner that minimizes site disturbance and development, reduces impacts on local roads and infrastructure, and maximizes energy resource availability so as to provide the most benefit.

Policy 7.24: Allow energy generation facilities in existing or prospective agricultural areas, especially in the Rural Land Use Areas, only where the energy generation installations conform to, compliment, or add value to the agriculturally-productive landscape or to the surrounding ecosystem services.

Policy 7.25: Discourage any renewable energy generation facilities in these identified unsuitable areas, identified by the Town of Vernon:

- Within the Resource or Conservation Land Use Areas.
- Fragile natural areas, as determined by the Land Use chapter of the Vernon Town Plan.
- Prime agricultural soils and fragile natural areas as designated on the Town of Vernon Constraints map.

Policy 7.26: Town of Vernon will demonstrate leadership by example with respect to the deployment of renewable energy by promoting energy generation facilities on all town buildings, town parks (for smaller-scale installations) where appropriate and feasible.

Policy 7.27: Encourage the development of large scale commercial electric generation facilities on the site of the former VY property and encourage the development of a town wide microgrid utilizing power from a commercial electric generating facility.

8 - NATURAL RESOURCES

Goal

To recognize, promote and protect the natural resources inherent to Vernon and guide the acceptable use of resources to ensure responsible conservation of our environment for the enjoyment and benefit of current and future generations.

Introduction

A major portion of the total land area of the Town of Vernon has an ecological and/or a resource value of critical importance and should be protected. These lands include productive agricultural and forestlands; mineral, stone, and sand deposits; flood plains, wetlands; groundwater storage and recharge areas; ponds and streams; relatively high elevations and steep slopes; and valuable scientific, historic, architectural, archaeological and wildlife resources, and other areas of significant ecological value. Many of these are identified on the Town Plan Maps and described in the Plan.

General Natural Resources Policies

Policy 8.1:It is the policy of the Town to encourage, in every possible way, the careful use of such lands so that the resource or condition is not significantly altered or threatened and the public good is upheld.

Policy 8.2: The Town shall be encouraged to purchase or accept rights to property that has specific resources value as identified in the Town Plan.

Agricultural Resources

Vernon owes much of its present character to the continued use of large land areas for agricultural production associated with dairy. As recently as 2010, one Vernon farmer was recognized for producing the highest yield of corn per acre in the state. After forestland, the major land use in the town of Vernon is agriculture. In order to establish sound policy about the use and preservation of Vernon's agricultural lands, there must be a common understanding of the agricultural resource base.

Agricultural soils: The United States Department of Agriculture Natural Resources Conservation Service (NRCS) has worked with State officials to categorize soils found in Vermont according to their potential for agricultural use. This land use capability system is based upon the physical and chemical characteristics of soils, as well as climatic conditions. All soils have been labeled as having high, good, low, or limited potential for agriculture. For state land use planning purposes, specifically for the Act 250 review process, high and good potential soils are considered "primary agricultural soils."

At the local level, the Vernon Farmland Protection Advisory Committee undertook an extensive soils mapping project in 1982 with assistance from the NRCS for the purpose of developing and implementing the Vernon Land Evaluation Site Assessment Program (LESA), a system designed specifically to help the Town identify farmland in need of protection under the community's Farmland Protection Program.

Soils were evaluated based upon their relative productivity in Vernon and were subsequently classified into seven different Agricultural Value Groups. A copy of the full soil potential study is on file in the Vernon Town Offices. Groups 1 through 3 represent the three best soils groups in the Town. Together with three additional soil types, which were placed in Agricultural Value Group 4, these soils represent the "primary agricultural soils" as defined by the State soils classification system.

Agricultural Land: Agricultural land used for farming purposes in Vernon includes both lands where soil is considered primary agricultural soil, as well as those where soil has been identified as non-primary. This suggests that any future efforts to identify and protect locally important farmland in Vernon need to consider more than just the soil characteristics of land.

Farmland Protection Fund: At Town Meeting on March 2, 1982, on the recommendation of the Vernon Planning Commission, the Town of Vernon voted to establish a Farmland Protection Program that included a Farmland Protection Fund to assist in the acquisition of conservation restrictions on agricultural land.

Following a special Town Meeting on May 3, at which the March action was reaffirmed, the Selectboard appointed a special study committee that drafted operational policies and procedures. The committee received technical assistance from the Windham Regional Commission, the USDA Soil Conservation Service (now the Natural Resources Conservation Service), the UVM Extension Service, the USDA Resource Conservation and Development District, and the Ottauquechee Regional Land Trust. Approved by the Selectboard in September, the policies and procedures called for mapping all farmer-owned and rented land and the identification of the soils and acreage of all parcels. An agriculturally focused Land Evaluation and Site Assessment (LESA) program was used to determine criteria to assist in prioritizing lands in need of protection.

The implementation of the Farmland Protection Program rests with the Selectboard, assisted by the Farmland Protection Advisory Committee. The Farmland Protection Fund is to be used primarily to acquire interests in threatened agricultural land in Vernon and acquire development rights on those lands. The Fund and Advisory Committee were developed to encourage the use of primary agricultural soil for farming and related pursuits that will maintain the potential of such soils for productive agriculture.]

GIS evaluation of farmland in Vernon indicates that in 2011 approximately 1,780 acres are associated with farms in Vernon, including both pastures and land under cultivation. This land is either owned by local farmers or is leased or rented by them from non-farmer landowners; and is identified on the Existing Land Use map. In 1994, the agricultural land acreage was approximately 1,870 acres. Comparing the figures and maps indicates that between 1994 and 2011 approximately 10 acres of agricultural land were abandoned, 105 acres were converted to development, and 25 acres became new agricultural land.

Farmland leased by Vernon's farmers is being actively farmed for either crop production or pasture purposes, while a sizeable portion of the land owned by farmers is in forest use. For the most part, this forest land is unsuitable for direct crop production or pasture land. These forest lands may contribute to the general economic viability of local farms by providing opportunities for maple sugaring, firewood and lumber harvesting, and Christmas tree production.

Vernon farmers clearly rely heavily on the availability of leased land to support their farm operations. Studies in 1992 showed that farmers leased approximately 547 acres of land in Vernon, as well as land in adjacent towns in MA. (Informal confirmation in 2018 indicates that this number has not changed significantly). This represents approximately 35% of the total number of acres used by farms in operation at the time. This suggests that Vernon farmers, like their counterparts in neighboring communities, are vulnerable to sudden changes in the availability of a sizeable portion of the land which they depend upon to keep their agricultural enterprise economically viable, since they do not own, and therefore, do not control the lands they lease. It is recognized that the economics of farming are changing and will continue to change in the future. In light of this reality and in fairness to the landowners, reasonable multiple uses and alternative use of the important agricultural lands must be provided for. Preservation of farmlands which cannot yield a reasonable, competitive living to a working farmer has to be regarded as a public expense, not a private owner's burden.

Farmland Protection Fund Policy

The Town shall continue the Farmland Protection Fund which was established on March 2, 1982. This fund is to be used to acquire or match state, federal, and other funds for acquiring, interests in high priority threatened agricultural land, acquire development rights, and may be recommended for use as supplemental state and local tax assistance, all uses subject to approval by vote at a Special Town Meeting or a Regular Town Meeting.

Farmland Protection Projects: Vernon Farmland conserved with an appropriation from the Vernon Farmland Protection Fund as approved by the voters of Vernon.

Unaitis Farmland Conservation Project

The Town of Vernon assisted Marjorie Unaitis to transfer part of her dairy farm to David and Phyllis Newton. This was accomplished by the Town purchasing 76 acres of farmland from the 200-acre Unaitis Farm. The voters approved this $40,000 purchase in 1983 using money from the Farmland Protection Fund. This purchase by the Town was considered a bargain-sale, that is, at a price less than fair market value. The Newtons purchased the farmhouse, barns, and some land around the buildings at fair market value and leased the 76 acres from the Town. Five years later, in 1988, the Town sold the farmland to the Newtons for the same price replenishing the Town’s fund. The land was sold subject to a conservation easement held by the

Town of Vernon and Vermont Land Trust. Each year the Vermont Land Trust stewardship staff visit the property to check in and monitor the conservation easement.

Cersosimo-Dunklee Farmland Conservation Project

In 1999, Alfred and Jeff Dunklee had an agreement to purchase 101 acres of farmland on Newton Road from Cersosimo Industries Inc. This land was formerly part of the Whitaker Farm and had been rented by the Dunklees for a number of years. This was considered productive farmland and important for the Dunklee's dairy farming operation. The fair market value of the land, since it was suitable for development, was substantially in excess of what could be justified as a purchase price for strictly agricultural use. The Farmland Advisory Committee recommended that the Town purchase development rights on this property for $230,000 from the Dunklees upon their acquisition of the property from Cersosimo Industries Inc. for $400,000. The Town of Vernon at a special town meeting on April 19, 1999 voted 94 to 11 to support this conservation project. The Dunklee's contributed the farmland value of $170,000 to the project on their own. In return for the Town's contribution towards this conservation project, the Dunklees agreed to certain conservation restrictions. These restrictions define the permissible agricultural, forestry, and other uses consistent with the maintenance of the property as open space, and limit future development, without the consent of the Selectmen, to a single dwelling and accessory and farm structures. The conservation easement to this property is held by the Town of Vernon without any outside partners.

Dunklee Farmland Conservation Project

At the 2017 Annual Town Meeting Vernon voters agreed to purchase the development rights to 73 acres of land on Pond Road from Jeffrey and Kelli Dunklee. This purchase was in cooperation with the Vermont Land Trust through a grant from the Vermont Housing and Conservation Department. Matching funds of $54,000 were provided from the Farmland Protection Fund to keep the land available for agricultural use in perpetuity.

Carr Farmland Conservation Project

At the 2017 Annual Town Meeting Vernon Voters authorized the Selectboard to spend $45,300.00 (plus expenses not to exceed $6,000) from the Farmland Protection Fund to buy the development rights to permanently conserve 25 acres located on 406 Pond Road from Jean Carr. The purchase was finalized in 2018 with Jean Carr agreeing to development restrictions on the property that would prohibit residential dwellings, allow for agricultural structures, and maintain viability as prime agricultural property.

Farmland Protection Fund and Program Recommended Actions:

1. The Town should support the continuation of the Farmland Protection Committee.
2. The Committee should review potential projects.
3. The Committee should approach and work with landowners about potential projects.

The Town of Vernon recognizes the considerable importance of farming to the Town's social, economic and natural environment, as well as the importance of protecting existing farms and agricultural land for expanded or new agricultural uses. For these reasons, when agricultural land is proposed for change of use, the Town adopts the following policies to guide future public and private development activity.

Agricultural Resources Policies:

Policy 8.3: The Town will encourage the use of primary agricultural soils for farming and related pursuits that will maintain the potential of such soils for productive agriculture.

Policy 8.4: Agricultural land that is important to the Town is identified on the Existing Land Use Map. Important agricultural land includes, but is not restricted to, primary agricultural soils as defined by the state and NRCS.

Policy 8.5: Construction or extension of public services and utilities by the Town (i.e., roads, sewer, recreational areas), State (highways), or private companies (energy generation or transmission facilities), should not change the Grand List Category of any abutting farm land. However, if these improvements will change the Grand List Category, then the Town shall encourage the utilization of the authority granted its Selectboard and Town School District Directors by vote at the 1974 Annual Town Meeting to contract with farmers for Tax Stabilization purposes as provided for under 24 V.S.A. § 2741. In the alternative, the farmer should be encouraged to consider the sale of development rights to the Town Farmland Protection Program and/or the Vermont Land Trust.

Policy 8.6: The Town will inventory its forest soils and secondary agricultural soils for such lands. It is the policy of Vernon to plan, where possible that will not materially reduce the productivity of these soils.

Agricultural Resources Recommended Actions:

1. The Town Farmland Protection Advisory Committee shall continue to advise the Vernon Selectboard, School Board, Planning Commission and other public and private bodies and individuals in the implementation of the above policies. The committee should employ land evaluation and site assessment (LESA) guidelines to determine which agricultural and forestry land is in the Town's interest to protect. Appropriate land protection measures and techniques should be employed.
2. The Town shall continue to encourage the efforts of non-profit land trusts within the Town.

Forest Land

The majority of Vernon's land base is forested. Much of the forestland is impractical for development due to limited accessibility, steepness and poor soils. This is particularly true in the western portions of town. Several large forested areas are owned by the Vermont Fish and Wildlife Department and are also unavailable for development.

Demands on the Town's forestland are likely to increase. Where conditions are favorable, future residential development will be encouraged on wooded land, as opposed to highly visible open areas.

Forest Land Policy:

Policy 8.7: The value of forestland for lumber, recreation, wildlife habitat, scenic resources and as a vital component in the hydrologic cycle shall be recognized and protected to the fullest extent possible; and proper management of forest resources shall be encouraged to increase the quality of existing forest resources.

Water Resources

The residents of Vernon rely entirely on groundwater for their drinking water supplies since no municipal water supply system exists within the community to date. Much of the future development in Vernon will continue to depend on groundwater resources. Thus, protecting this resource is of paramount importance.

The largest surface water body in the Town is Lily Pond, at approximately 40 acres, with a watershed area of about 400 acres. There is also Hatchery Pond, a former trout hatchery. Both Lily Pond and Hatchery Pond have public access for boating and fishing.

Although the Connecticut River defines the eastern boundary of Vernon with Hinsdale, NH, much of the Connecticut River is not within the Town of Vernon since New Hampshire owns to the high water mark. It is a significant water resource that is used by residents of Vernon for boating, swimming, fishing, hunting, and birding. The public access area at the base of Vernon dam provides sandy areas for swimming, fishing, and a boat launch. Frequent releases of water from the dam to generate electricity have to be closely monitored by river users since water levels can rise rapidly.


Black Gum Swamp

Water Resources Policies:

Policy 8.8: To ensure maximum water yield and quality for the health and welfare of the public, areas which have been identified or will be identified as having high groundwater potential or which permit the collection or recharge of groundwater supplies shall be protected from any potential adverse impacts of land use activities and development.

Policy 8.9: It is a policy of the Town to protect its water resources by restricting development to areas other than headwaters of watersheds characterized by steep slopes and shallow soils or watersheds of public water supplies, when and if land is developed.

Wetlands and Connecticut River

Wetlands throughout Vernon provide ideal habitat for a variety of plant and animal species. Many avian inhabitants such as ducks, geese, rails, and herons, as well as numerous songbirds and birds of prey rely on wetlands for nesting, brood rearing and migration rest areas. Wetlands are also essential habitat for muskrat, beaver, otter, mink, raccoon, a number of fish species, and a variety of reptiles and amphibians.

Rivers and Streams: Town Brook, Newton Brook, Cold Brook, and Roaring Brook are located in Vernon and support small, but self-sustaining populations of brook trout.

Broad Brook, located in the northern part of the town, has three species of trout, Brown, rainbow, and brook trout, and receives reasonably high angling pressure.

The Connecticut River is the focal point for restoration of two anadromous fish species: Atlantic salmon and American Shad, to central New England. In order to provide the salmon and shad access to their historic spawning and nursery waters in the upper mainstream as well as several critical tributaries, a fish ladder was constructed at the Vernon Hydroelectric Station. Since going into operation during the spring of 1981, both salmon and shad have been observed passing upstream through this facility. Shad have responded quickly to the opening of new habitat in the river adjacent to Vernon with young shad being produced during each year since the fish ladder went into operation. Presently, sufficient numbers of adult shad ascend the Connecticut River to the Vernon area to provide sport fishing, particularly in the vicinity of the dam and Stebbins Island.

Aside from anadromous species, the Connecticut River supports a diversity of resident fish species including small mouth bass, largemouth bass and walleye. Although less abundant in the river than the three preceding species, brown and rainbow trout frequent the Vernon area particularly at the mouths of the smaller tributaries to the river. Pan fish common to the area include yellow perch, white perch, rock bass, brown bullhead, common carp, and several sunfish species. The Connecticut River is valuable habitat for waterfowl and wading birds. Ospreys and Bald Eagles are also frequently observed

Whether it is the Connecticut River or any of the small streams located in Vernon, the continued ability of these waters to support wildlife resources is reliant upon the quality and quantity of their habitat. Stream relocation and channelization, as well as pollution, result in the long-term destruction of essential habitat.

Wetlands and Connecticut River Policies:

Policy 8.10: Protect the limited number of wetlands in Vernon from development and avoid draining for development purposes unless the long-term public benefit of so doing heavily outweighs the loss of resource value.
Policy 8.11: Restore and create new public access areas to the Connecticut River, particularly at the former Vermont Yankee property.

Policy 8.12: Promote Connecticut River recreation and environmental education activities for Vernon Elementary School students.

Policy 8.13: Work with the Friends of Vernon Village to establish new public access to the Connecticut River at the former VY site, and promote events such as canoe races and fishing tournaments that would draw visitors to future Vernon Village restaurants and stores.

Policy 8.14: Improve the public recreational access area immediately below the Vernon dam to provide a more convenient and safe boat launch facility, as well as a swimming area.

Policy 8.15: Designate a 500' riparian area along the Connecticut River to protect wildlife habitat, flood hazard areas, and agricultural soils.

Policy 8.16: Require the owners of the Connecticut River hydroelectric dams to manage water levels in a manner that minimizes erosion of the river banks, particularly in areas with prime agricultural soils.

Policy 8.17: Work with the Towns of Brattleboro, Hinsdale, Northfield, and Winchester to develop a recreational trail network for hiking and biking.

Wildlife, Habitat and Habitat Connectors

Vernon has a very mild climate for Vermont; in addition it lies along the flood plain corridor of the Connecticut River and in some areas contains substantial sandy soils. These characteristics allows species that are at the northern extreme of their range to be found in Vernon and often in no other town in the Connecticut River drainage of Vermont or in some cases, nowhere else in Vermont at all. Using the many unusual plants and natural community types found in Vernon are quite a few rare reptiles and amphibians.

Town Forest Tour with State Forester (2017)

The Town of Vernon is rich in areas of high ecological value. The Vermont Nongame and Natural Heritage Program track native rare plants and animals and plant communities that are threatened or endangered. These species and communities are considered rare because they have particular habitat requirements, are at the edge of their ranges, or are vulnerable to disturbance or collection. The general locations of these species and habitats are mapped using GIS. Species descriptions are available through the state program. These species and their habitats deserve an extra level of protection.

The combination of the RBWMA, Vernon Town Forest, several undeveloped inholdings, large private parcels to the north and east devoted to forest management, and conserved lands to the south in Massachusetts and the 5,000 acre Satan's Kingdom Wildlife Management Area results in extensive forested habitat that can fulfill the needs of a number of wildlife species. White-tailed deer and turkey are common and abundant game species. The Eastern Racer, an endangered species of snake, is found on the property along with vernal pools and wetlands that support a wide variety of amphibian and bird species. Bat surveys indicate an atypical abundance of bat species including little brown, northern long-eared and big brown bat.

Important habitat features include large areas of deer wintering habitat, stands of oak and hickory that provide wildlife food, numerous wetlands, and Eastern Racer habitat along the Interstate and power corridor. The

RBWMA is adjacent to several large conserved parcels in Massachusetts creating an approximately 5,000-acre area of conserved habitat in the region.

Roaring Brook is used primarily for hunting and, to a lesser extent, snowmobiling. There is evidence of destructive off-roading activity. Currently there is limited legal access to the parcel. The Vernon Town Forest, which abuts this parcel on the east, has good access and a trail system linking the parking area to the more prominent Black Gum Swamp in the town forest.

Wildlife, Habitat and Habitat Connectors Policies:

Policy 8.18: Important wildlife corridors will be protected or conserved from encroaching development and incompatible activities, such as road expansion or development of new roads, by restricting development in and around corridors. These resources will be given high priority in considering lands for acquisition or other long-term conservation efforts.

Policy 8.19: Critical wildlife habitats (including but not limited to wetlands, deeryards, surface waters, etc.) shall be protected from uses and development which reduce their vital biological function.

Policy 8.20: Sites or areas of endangered or rare species of wildlife shall not be used or developed in a manner that will destroy, diminish or imperil those species.

Policy 8.21: Habitat Connectors will be protected from encroaching development whenever possible.

Policy 8.22: Ensure that animals and plants are able to move freely between conserved lands and lands under long-term stewardship, contiguous forest habitat, and other important habitats, land features and natural communities to meet all their requirements for survival by increasing the acreage of connecting lands.

Species of Note

Spotted Turtle (Clemmys guttata). Vernon has one of only three known populations in Vermont. State endangered, S1, high priority Species of Greatest Conservation Need (SGCN). Since this species is associated with wetlands, large buffers (500 ft. would be good, but even 100 would help) should be applied to protect the wetlands where it is known.

North American Racer (Coluber constrictor). Vernon shares with Guilford the only known population of this species in VT. State Threatened, S1, high priority SGCN. Minimizing development near the powerlines and roads crossing the powerlines would help. Maintaining open pasture, or brush-hogged areas (not cropland) would help.

Northern Watersnake (Nerodia sipedon). Vernon has the only known population of this species in the Connecticut River drainage of VT. Not listed, S3, medium priority SGCN. Large buffers near wetlands would help. Vernon Hatchery Pond is (or was) a stronghold.

Eastern Hog-nosed snake (Heterodon platirhinos). Vernon appears to have the first and only known population of this species in Vermont. Not listed or ranked. Officially hypothetical based on the two young found in 2010. Since this species has been found in the uplands around the Spotted Turtle wetlands, both species would benefit from buffers and land conservation in those areas.

Eastern Ribbonsnake (Thamnophis sauritus). UVM has specimens collected from the same wetland area that the Spotted Turtle uses, but these records are historic. Since then the snake has not been seen in Vernon. Only a single snake of this species has been located in the VT portion of the Connecticut River Valley (Putney). This is an S2, special concern, high priority SGCN.

The amphibians are:
Fowler's Toad (Anaxyrus fowleri). The open lands along Stebbins Road and connecting to the Connecticut River have the only known population of this species in Vermont. Not listed, but S1 and high priority SGCN. Land conservation in this area is the key.

Four-toed Salamander (Hemidactylium scutatum). This rare salamander is currently only known from two locations within the Connecticut River drainage of VT. It shares habitat with the Spotted Turtle and Hog-nosed Snake. It is not listed, but has a state rank of S2, is a special concern species with medium priority SGCN. Buffers and land conservation within 500 ft. of those wetlands would help conserve this species.

Deeryards: White tailed deer are a valuable resource to the Town of Vernon, providing opportunities for hunting and recreational viewing and filling an essential ecological niche in the community's natural environment. The heavily wooded, rugged and low population characteristics of the western portion of Vernon provide ideal habitat for wintering deer populations. These critical deer wintering areas comprise approximately 672 acres or approximately five percent (5%) of the Town's total land area.

Deer wintering areas can be completely destroyed or their carrying capacities greatly reduced by some activities of man. Of primary concern are housing, recreational and industrial development, highway development and poorly managed logging operations.


Lily's Pond

Fragile Areas
Fragile areas are irreplaceable components of Vernon's natural heritage. They are valuable for maintaining a diversity of natural communities, providing refuges for rare and endangered plants and animals, and for providing standards by which to judge the health of the environment. They have great biological, educational and social value.

The Vernon Black Gum Swamp: Three distinct black gum swamps and several groups of individual black gum swamps are located in the J. Maynard Miller Town Forest. The largest of these swamps straddles the boundary between the Vernon land and the Roaring Brook Wildlife Management Area, which is controlled by Vermont's Fish and Wildlife Department. This five-acre swamp is listed as one of the 64 best natural areas in the State. Several plants, which are rare in Vermont, are found here. The black gums are the most conspicuous.

The black gum swamps are worth preserving. They are important

sources of scientific information and a valuable educational tool. Isolated pockets of a species may be genetically unique. Because they were never logged some trees are very old (some individuals perhaps as much as 400 years old). These swamps give us an idea of what a virgin forest was like. The wide diversity of plants in these small areas makes these swamps a valuable educational resource for schools and nature groups. The impressive sight alone of these thirty-inch diameter trees with their deeply fissured bark and broken tops is enough to justify their protection.

The community of plants in the Vernon Black Gum Swamps is fragile. Although the old gums still appear to be healthy and younger gums are growing nearby, many factors could destroy the swamps as we know them. Black gums prefer warmer climates; several unusually cold winters could kill them. A strong windstorm could uproot their shallow root system. Careless logging, off-road vehicles, or heavy hiker visitation could cause soil and organic matter to wash down into the swamp basins and suffocate the roots. Well-meaning visitors could kill the trees and other rare plants simply by trampling and compacting the soil.

Fragile Areas Policies:

Policy 8.23: The Town will protect and maintain Vernon's Black Gum Swamps by preventing sudden environmental changes around the swamps and by limiting vehicle access to these natural areas.

Policy 8.24: The Town will encourage sound forest management practices on the J. Maynard Miller Town forestland which surrounds the Black Gum Swamp and shall prohibit any tree cutting within a 300-foot radius of the swamps.

Fragile Areas Recommended Actions:

1. The Vernon Recreation Department should coordinate with the Vermont Department of Forests, Parks and Recreation to develop a master plan for the protection of the Black Gum Swamp in conjunction with the forestry and recreational use of the J. Maynard Miller Town Forest.
2. Roads usable by four wheel drive vehicles or dirt bikes should be closed at all forest entrances during both wet and dry seasons to help prevent soil erosion and possible fires.

Flood Resilience

Background

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

(14) To encourage flood resilient communities.

(A) New development in identified flood hazard, fluvial erosion, and river corridor protection areas should be avoided. If new development is to be built in such areas, it should not exacerbate flooding and fluvial erosion.

(B) The protection and restoration of floodplains and upland forested areas that attenuate and moderate flooding and fluvial erosion should be encouraged.

(C) Flood emergency preparedness and response planning should be encouraged.

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

(12) (A) A flood resilience plan that:

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

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

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

Fluvial Erosion

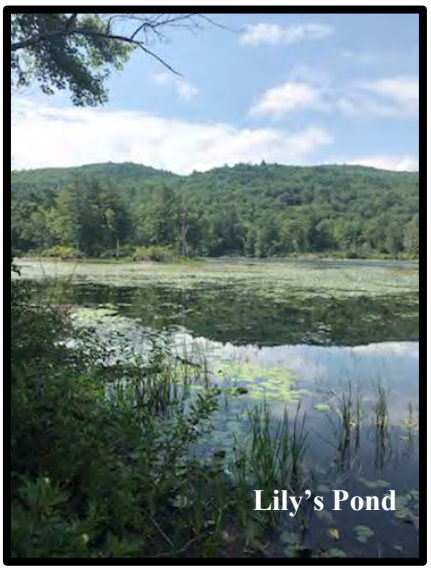
By statutory definition, "fluvial erosion" means the erosion or scouring of riverbeds and banks during high flow conditions of a river. Much of the flooding damage experienced in Vermont is from the power of moving water causing the erosion of stream banks supporting roads and buildings and the sudden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

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

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

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

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


Lily's Pond

River corridors and Floodplains

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

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

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

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

Regulatory Flood Hazard Designations

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

The Town of Vernon has land, homes and businesses that are susceptible to the two types of flooding impacts: inundation and fluvial erosion. Inundation flooding occurs during high water events on the Connecticut River. Fluvial erosion occurs in areas both in and out of the flood hazard area (floodplain) as mapped by the FEMA. Both inundation flooding and fluvial erosion are potential hazards along the Connecticut River, Broad Brook, and Newton Brook, as well as along other streams that drain watersheds extending to border of Vernon.

Inundation Hazard

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

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

Flood Hazard Regulation

Inundation
For federal flood insurance to be available to property owners though the NFIP, a municipality must adopt and administer flood hazard area regulations. Since Vernon does not have zoning, the Town has adopted a free-standing bylaw to regulate new structures and place restrictions on other types of activities, such as placing fill within the floodplain.

Erosion
To address Act 16, to protect citizens, infrastructure, and the environment, and to qualify for maximum Emergency Relief and Assistance Fund state match in the event of a disaster, the Town of Vernon must adopt and administer River Corridor protection standards as part of its flood hazard area regulations.

Emergency Relief and Assistance Fund
The Emergency Relief and Assistance Fund (ERAF) provides State funding to match Federal Public Assistance after federally-declared disasters. Eligible public costs are reimbursed by federal taxpayers at 75%. For disasters after October 23, 2014, the State of Vermont will contribute an additional 7.5% toward the costs. For communities that take specific steps to reduce flood damage the State will contribute 12.5% or 17.5% of the total cost. Towns that participate in the NFIP and regulate SFHAs, and also meet several other state requirements, can achieve a 12.5% state share of the required 25% state/local match for federal disaster relief funds. Towns that regulate river corridors can obtain an additional 5% ERAF match, reducing the town's required local match to 7.5%.

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

Flood resilience plan recommended policies and strategies

Goal: To encourage Vernon to become a more flood resilient community

Policy 8.25: It is the policy of the Town to foster the protection and restoration of river corridors, floodplains, wetlands, and upland forested areas that attenuate and moderate flooding and fluvial erosion.

Recommended Action:

1. The Town will be familiar with up-to-date ANR river corridor maps that delineate the land area adjacent to streams and rivers that are required to accommodate a stable channel.

Policy 8.26: It is the policy of the Town to protect floodplains, river corridors, land adjacent to streams, wetlands, and upland forests through adoption and administration of flood hazard area regulations governing development in designated Special Flood Hazard Areas and River Corridors, in order to reduce the risk of flood damage to infrastructure, improved property, people, and the environment.

Recommended Action:

1. The Town will be familiar with Flood Insurance Rate Maps (FIRMs) that delineate areas that could be covered or inundated by water during flooding.

Policy 8.27: New development in identified flood hazard, fluvial erosion, and river corridor protection areas should be avoided. If new development is to be built in such areas, it should not exacerbate flooding and fluvial erosion.

Recommended Action:

1. The Town will regulate any new development in identified flood hazard areas, fluvial erosion hazard areas, and/or river corridors to ensure that development does not exacerbate flooding and fluvial erosion, and extend these provisions to development activities that might increase the amount and/or rate of runoff and soil erosion from upland areas.

Policy 8.28: The protection and restoration of floodplains and upland forested areas that attenuate and moderate flooding and fluvial erosion should be encouraged.

Recommended Action:

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

Policy 8.29: Flood emergency preparedness and response planning are encouraged.

Recommended Action:

1. The Town will pursue a flood resilience management approach whose essential components are to identify and map flood hazard areas, fluvial erosion hazard areas, and river corridor protection areas based on stream geomorphic assessment studies and maps provided by the Vermont ANR Rivers Program, and designate those areas for protection to reduce the risk of flood damage to infrastructure and private property.

Additional information is available at http://floodready.vermont.gov/.

9 - HOUSING

Goal

To ensure safe, secure and adequate housing availability for families of all income levels.

Narrative

Table 3 indicates the number and distribution of housing types present in Vernon in 2007, 2010, 2014 and 2017. Just over ninety percent of Vernon's housing stock is comprised of single-family dwellings. Mobile homes account for almost ten percent.

Table 9.1: Characteristics of Year-Round Housing

	Single Family	10+ Units	Mobile Homes
2007	651	2	77
2010	663	2	74
2014	668	2	71
2017	674	2	70

Source: Vernon Town Listers

Single-family units have accounted for the majority of all new housing in Vernon throughout the past years. Given the lack of a centralized sewage treatment system, this form of development will most likely continue to dominate. Therefore, it is important that future development occurs on sites capable of maintaining permanently functioning on-site sewage and water facilities.

It is in the Town of Vernon's interest that new or rehabilitated housing should be safe and sanitary, available in adequate supply to meet the requirements of all the Town's residents and be coordinated with the provision of necessary public facilities and utilities.

Policies:

Policy 9.1: Wherever appropriate to the Town's rural character and the capability of the land, and to the efficient provision of services, developments in areas designated to accommodate residential growth shall be encouraged to employ the cluster planning concept so as to avoid negative aspects of development sprawl.

Policy 9.2: The development of housing shall be coordinated with the adequate provision of public utilities, facilities and services. As seasonal homes are convertible to permanent homes and are often so converted, the Town shall consider permanent and seasonal homes by the same standards.

Policy 9.3: The Town shall continue to support the state sewage disposal regulations and permit issuance process. This will help to minimize pollution of Vernon's soils and water resources and public health problems resulting from increased residential development.

Recommended Action:

1. The Town should allow for a range of residential development that meets the diverse housing requirements of a variety of household types and income groups.

Senior, Affordable and Accessible Housing

According to census estimates, Vernon's population of citizens aged 65 years and older numbered 444 in 2015 about 22% of the population. While Vernon's senior population is not unusually high, it has grown 13%

between 2010 and 2015. This far exceeds Windham County growth rate in the same population age of only 3.4% in the same time frame. Special considerations may be needed to meet this group's housing needs.

Located in a rural setting Huckle Hill Senior Housing is a two story building with an elevator. It has 24 units, laundry facilities on-site and heat and hot water are included in the rent. Eleven units receive rental assistance. Income limits apply on 18 of the units and a minimum age of 62 is required for residency.

Since Huckle Hill Senior Housing was built using funding through HUD's Section 202 Supportive Housing for the Elderly program, residency is restricted to persons who earn 50% of the Area Median Income (AMI) or less. Like other rental assistance programs like Section 8, resident's rents are based on their income and the tenant contribution is set at 30% of the tenant's income.

Since this property has received funding in part through the Low Income Housing Tax Credit (LIHTC) program, monthly rent cannot exceed the Tax Credit maximum rent for the area. Households earning less than 60% of the area median income qualify for units with reduced rent. Some rental units in this property may not be subject to LIHTC and therefore may be set at levels higher than the area's LIHTC limits.

Vernon Birches and Vernon Hall comprise a 54 unit housing complex available to seniors 62 years and older and the physically handicapped. All residents must meet annual income criteria. There are no entrance fees. The reasonable monthly rents include heat, water, use of common areas, snow removal, security, plus on-site maintenance and management. Optional amenities such as telephone and cable TV are available.

Seniors and those with limited access to transportation have access to bus services provided through the Town of Vernon for a minimal fare.

The Windham Windsor Homeownership Program is available to residents, including the following services:

- Money Talks – offers education on financial planning and management
- Smart Start to Homeownership – offers pre-purchase education and counseling
- Financial Assistance – for home purchase or home repair
- Delinquency Intervention
- Foreclosure prevention
- Credit repair assistance
- Homelands Program – offering affordable single-family homes for sale

Nine Vernon residents have taken advantage of Windham Windsor Housing Trust Programs between 2000 and 2017.

10-TRANSPORTATION

Goal
To guide the future development of the various modes of transportation, including roads, transit, systems for persons with disabilities, bicycles, walking and railroads that promote responsible development, encourage energy conservation and provide access to services for every resident.

Highways
Vernon has a total of approximately 36.8 miles of highway; of these, Town Roads comprise 26.4 miles, State Highways, 8.90 miles, and I-91 accounts for 2.7 miles.

There are no Class 1 highways in Vernon. Class 2 roads serve as main corridors between Vernon and other towns. Most Class 2 roads are paved. Class 3 roads are comprised of secondary town highways that are passable year round by standard vehicles. Class 4 roads are all other town highways. Typically Class 4 roads are seasonally functional for normal vehicular traffic and have a dirt surface. Legal Trails are a public right-of-way that were previously designated a public highway or a new public right of way laid out as a trail by Selectmen for the purpose of accessing abutting properties or for public use. Vernon has a single Legal Trail known as Lillis Pasture Road.

State Highway Route 142 (Fort Bridgman Road) provides access between the Connecticut River Valley towns in northern Massachusetts and Brattleboro. Traffic along Route 142/Fort Bridgman Road has remained relatively stable over the past 30 years. There was one notable increase in traffic counts, common to both Rte. 142 in the vicinity of Governor Hunt Road and Pond Road; this occurred in the mid-1980s and is presumably related to the Recreation Center on Pond Road (count increased from 970 in 1983 to 1,100 in 1987 and to 1,600 in 2009). Average daily traffic on Rte. 142 at Governor Hunt Road increased from 1,900 in 1982 to 2,600 in 1994 (closest years of data availability).

Overall traffic counts have been relatively stable over the last ten years. Near the MA state line counts have averaged roughly 1,200 over the past 30 years; just south of Governor Hunt Road they have averaged roughly 2,900 since the mid-1980s; and near the Brattleboro town line they have been in the vicinity of 3,600.

Maintenance
A comprehensive culvert inventory was conducted in 2013 and is updated annually via highway foreman reports. This inventory should be consulted when considering capital planning.

The “Culvert Fund”, where added monies are suggested to voters each year to cover costs of continued culvert replacement. New state mandates have increased costs of culvert replacement and the highway department should consider the expected increases when presenting the article at Town Meeting to add to the Culvert Fund.

Bicycle and Pedestrian Use
Bicycle use on some of Vernon’s roads is at times significant. Cycling and walking are healthy activities; the US Centers for Disease Control and Prevention has conducted studies showing there is a link between public health and access to bike and walk, especially as an occasional form of transportation, as well as recreation.

Vernon would like to encourage these activities through its transportation and land use planning. Where feasible, roads, especially new ones or those being renovated (resurfaced or reconstructed), should provide reasonable space to accommodate these activities.

Reasonable improvements to accommodate bicycles would allow the Town to expand its recreational offerings while encouraging at least a few to take up biking as a transportation alternative to the automobile. Providing adequate facilities for bicycles can involve the development of bike lanes or paths, the provision of bike racks, the provision of more elaborate facilities such as "bicycle lockers" so that commuters can switch between transportation modes, or simply ensuring that road improvements provide for sufficiently wide paved shoulder to accommodate bicycles.

Increased bicycle traffic along Rt. 142 indicates a need to actively ensure safe passage for bicyclists and walkers along this route. Bike and walking lanes, including connections to recreational facilities, should be considered when planning any road improvements. Additionally, any updates to infrastructure within the designated Village Center should consider planning for bicycle friendly access throughout the Village Center and to potentially developed adjacent areas, including the former Vermont Yankee site.

Vernon should consider designating preferred routes for cyclists, such as using Pond Road rather than Route 142, with approved road signs to encourage bicycle traffic on roads with less traffic volume, slower speeds, and fewer large trucks. Such routes could link to other bicycle facilities, such as the Franklin County (MA) bike path and the proposed bike path over the closed Schell Bridge in Northfield, MA.

Rail

A number of parcels in Vernon have access to the New England Central Railroad tracks. Potential access of new industries, if appropriate to those parcels, would most likely be by means of private sidings. For example, Cersosimo Industries has an extensive siding at the location of its quarry and chip plant. With the many at-grade crossings, there is a need to consider installing or improving existing railroad crossing signage, particularly on the numerous private road crossings. The limited supply of developed rail siding facilities suggests a continued great dependence upon the highway network for freight transport.

Transit

Vernon contemplates the future possibility of public transportation and encourages the extension of such service(s) to serve the town. Connecticut River Transit (CRT) operates a transit fixed route between Bellows Falls and Brattleboro during the weekdays. There are no stops in Vernon, but the possibility should be explored. CRT operates a Dial-a-Ride program that is available to Vernon residents for transportation to and from medical appointments. Vernon Elderly Services Committee also provides transportation for medical needs when possible. The Town provides transit service by the Town Bus. This service can be used for a variety of purposes including shopping trips, meal service, and medical service.

Recommended Actions:

No development should be permitted within existing or planned highways or rights-of-way.

Planning for Growth Policy

Policy 10.1: In planning for growth, it is the policy of the Town of Vernon to prevent commercial strip development and dense residential development that does not utilize a single access to the Town or State Highway to avoid proliferation of multiple access points (curb cuts). Such development adds unreasonably to traffic congestion and over-taxing of town roads and services.

In an effort to prevent sprawl and enhance the community, Vernon has obtained a state designated Village Center. At the passage of this Town Plan efforts are underway to develop a master design that encourages the concentration of business, residential, commercial and municipal services to the Village Center area.

Class 4 Road policy:

Policy 10.2: Any development that is proposed on a Class 4 road requires Selectboard approval. It has been the practice of the Town of Vernon to not maintain Class 4 roads. State statute allows the Town to regulate the usage of a Class 4 town highway (19 V.S.A. Section 304(a) (2)). This means that the Selectboard can limit the types of use such as snowmobiles, ATVs and 4x4s; limit the season of use such as restricting motorized vehicles during muddy periods; and set conditions with regards to speed and weight. Vernon currently has no use restrictions on Class 4 roads. The uses and maintenance of these roads should be evaluated so as to prevent negative environmental impacts.

Transportation Policies

Policy 10.3: Encourage pedestrian and bike paths for both recreational use and as alternative modes of travel, and, where feasible, require the addition of pedestrian and bike paths whenever any reconstruction and repair of roadways is undertaken.

Policy 10.4: Maintain the Town Bus service.

Policy 10.5: Support organizations that are actively involved with regional transportation issues.

Policy 10.6: Require that the Town of Vernon follow the State of Vermont's regulations regarding salt/sand storage sheds.

Transportation Recommended Actions:

1. Research Class 4 roads, determine their public benefit, and implement use restrictions and maintenance programs, as deemed necessary, to protect the environment and the infrastructure of the road.
2. In determining uses for Class 4 roads, a review process that considers citizen input as well as impacts to the environment and the neighboring properties should be employed.
3. Continue to require that any development on Class 4 roads receive authorization by the Selectboard.
4. Review, select and implement traffic calming techniques, such as narrowing travel lanes and installing speed tables, to reduce traffic speed and improve bicycle and pedestrian safety in the Villages.
5. Consider bicycle and walking paths along roadways that encourage these forms of transportation within the Village Center and link the town to services and recreation opportunities.
6. Make all sidewalks accessible to persons with disabilities.
7. Entrance features which inform travelers that they are entering or leaving the Villages should be designed and installed.
8. Periodically update the culvert and road inventory data.

11 - COMMUNITY FACILITIES
(Government Facilities and Public Utilities)

Goal
To provide for the necessary infrastructure and services that ensure a stable, safe, enjoyable and affordable community for the residents of Vernon,

Community Facilities Inventory

- A Town Office and Library complex was constructed in 1970.
- The Town Highway Garage was originally constructed in the early 1970's and a large wing for additional equipment storage was added in the early 1980's.
- A picturesque bandstand is in the Village Green adjacent to the Town Offices and near the Vernon Elementary School. Also in this space is the War Memorial.
- The North School building, adjacent to the Town Office property is used primarily for storage.
- A Recreation Center with an Olympic-size swimming pool, tennis courts, group picnic shelter, playground, and a basketball court was constructed in the 1970s for town residents and visitors.
- An expansive addition to the school was completed in the early 1980s. This addition increased instructional and recreational space from 14,000 square feet to 57,000 square feet.
- The Vernon Memorial Fire Station was built with volunteer help on land given for that purpose by J. Wadsworth White of White Partitions. It is centrally located within the Town on Route 142. The building was completed in 1962. In addition to an area for housing equipment, the station contains a chief's office, dispatch center and kitchen. The station is also equipped with hose washer and dryer. An emergency power generator was obtained with assistance from Emergency Management.
- The town owns and maintains the South School building on Fort Bridgman Road, which now houses the historical society museum.
- The town maintains five (5) cemeteries and a cemetery vault.
    - North Cemetery
    - South Cemetery
    - Tyler Cemetery
    - Whithead Cemetery
    - Alexander Perry Cemetery
    - Cemetery Vault at Pond and Rte. 142

Community Facility Policy:

Policy 11.1: The Town has developed a capital plan, program and finance guidelines. Anticipated expenses in excess of $10,000 within the ensuing 15-year period are identified, proposed, and approved at Town Meeting. Items included are fire and safety equipment, necessary municipal equipment, technology upgrades, building improvements or maintenance, new buildings and additions, and recreational facilities.

Fire Safety, Law Enforcement, and Emergency Management

Police: Vernon has a furnished office that is utilized by the Windham County Sheriff in fulfillment of contracted public safety services to the Town.

Fire: Vernon is served by the Vernon Volunteer Fire Department consisting of approximately 15 active volunteers. All emergency calls are received by Southwestern NH Mutual Aide dispatch. The Fire Chief is appointed by the Selectboard and receives a yearly stipend and training.

Emergency Operations Center: Vernon currently maintains an Emergency Operations Center with office equipment and a paid Emergency Management Director. At the writing of this plan the physical location of the center is expected to relocate, however an office will continue to be maintained by the town.

The town maintains five (5) fire ponds with many agreements for easement granted by private property owners.

Recommended Actions:

1. Continue to maintain fire ponds.
2. Update safety equipment as needed.
3. Maintain law enforcement at levels acceptable to local residents and voted on at Town Meeting.
4. Utilize elected Constables where appropriate.
5. Fire apparatus should be maintained in accordance with the Town of Vernon Capital Plan.

Public Facilities or Services Adjoining Agricultural or Forestry Lands Policy:

Policy 11.2: The construction, expansion or provision of public facilities and services should not significantly reduce the resource value of adjoining agricultural or forestry lands unless there is no reasonable alternative and the facility or service has been planned to minimize its effect on adjoining lands.

Transportation and Utility Corridors Policies:

Policy 11.3: The development and expansion of governmental and public utility facilities and services should occur within highway or existing public utility right-of-ways corridors in order to reduce adverse physical and visual impact on the landscape and achieve greater efficiency in the expenditure of public funds.

Policy 11.4: New development shall conform to Act 250 proceedings.

Policy 11.5: Efforts shall be made to influence public utility companies, builders, renovators and developers to bury utility lines in areas of great scenic or historic value; in town centers and residential subdivisions pursuant to Act 174.

Policy 11.6: Location of energy generating facilities is addressed in the energy planning section of this plan.

Solid Waste Disposal

The Town is compliant with Vermont's Universal Recycling Law, Act 148, which requires that trash collection and disposal utilize, variable rate pricing, which is known as Pay-As-You-Throw (PAYT). The

Town's Solid Waste Committee estimates that Vernon is exceeding the state goal of 50% recycling by 2020 thanks to widespread participation in recycling and food waste composting by Vernon residents.

The Town government is also compliant with Act 148 by providing recycling receptacles at all public locations that have trash containers, such as the Town office, library, and elementary school.

The Town contracts with a private hauler to provide curbside trash and recycling collection for residents. Residents who participate in the curbside collection program must purchase Vernon PAYT bags for their trash. By putting recyclable materials in containers for curbside collection, residents minimize the need to purchase PAYT bags. Vernon started offering curbside collection of single stream recyclable materials in 2014.


South School Museum

Along with Brattleboro and Westminster, Vernon is one of only three towns in Windham County to provide residential curbside collection of trash and single stream recyclable materials. Trash is hauled to a local transfer station, and then to distant landfills, and recyclables are hauled to a local transfer station, and then to a material recycling facility (MRF) in Rutland.

After more than 20 years of providing three separate recycling collection containers for paper, cardboard, and bottles/cans at the Town highway garage, the Windham Solid Waste Management District (WSWMD) stopped collecting and processing dual stream recyclables as of July 2017. The decision of WSWMD to close it's 23 year old dual stream MRF was a consequence of the trend to utilize single stream recycling where paper, cardboard, and containers are collected in one container, and processed at single stream MRFs.

The Town's Solid Waste Committee tracks the costs of the trash and recycling program, and revenues generated from sale of PAYT bags, and periodically recommends changes in the cost of PAYT bags to ensure bag costs are covering trash collection and disposal costs, as mandated by Act 148. Other Town solid waste program costs are subsidized by the Town's solid waste fund.

For more than 10 years, the Vernon Elementary School has operated a food waste collection program in the cafeteria. Starting in October 2009, the Town has provided dumpsters at the Town highway garage for recycling food waste and non-recyclable paper and cardboard. The town's hauler collects food waste at both locations for a monthly fee. Currently the food waste is hauled to a farm composting facility in Greenfield, MA. The collection of food waste is a significant factor in the Town attaining a recycling rate of over 50%.

The Town is an active participant in the WSWMD, which provides solid waste and recycling services to its member towns (www.windhamsolidwaste.org). One of the biggest financial benefits of being a member of WSWMD are the household hazardous waste collection programs offered four times per year as required by Act 148

WSWMD also operates a transfer station and composting facility in Brattleboro that is available to residents and businesses for disposal and recycling of a wide range of materials. Brattleboro Salvage also operates a transfer station that is available for trash and recycling.

Solid Waste Disposal Policies:

Policy 11.7: The Town shall comply with the requirements of all State solid waste laws and regulations, particularly Act 148, Vermont's Universal Recycling Law which was passed unanimously by the Vermont legislature and signed into law by the Governor in 2012.

Policy 11.8: The Town will continue to be a leader in recycling by diverting recyclable materials and food waste from landfill disposal.

Recommended Actions:

1. The Town should continue to work in conjunction with the Regional Planning Commission, Windham Solid Waste Management District, and other regional facilities to develop and implement a long-range plan for solid-waste disposal, and resource and energy recovery from solid waste.
2. The Town should continue to work with WSWMD to further reduce the quantity of waste that is disposed of by increasing recycling, particularly PAYT.
3. The Town should consider expanding its recycling program to include curbside collection residential food waste. Curbside collection of food waste may be required by Act 148 starting in 2020, and may save the Town on total solid waste costs if the Town switched to bi-weekly trash collection, with recyclables and food waste collected on a weekly basis.

Public Recreational Resources

Vernon has an expansive recreation park, opened in 1971, with a swimming pool, offices, locker room and bathroom facilities. Since that time two lighted tennis courts, a basketball court, two shuffleboard courts, a group picnic shelter and picnic sites with tables and grills in the wooded area, horseshoe pits and children's playground have been added. The Town installed equipment in the pool in 1985, providing access for the physically-challenged. Current programs include:

- An arts and crafts program;
- An extensive summer program that includes:
  - swimming lessons
  - tennis lessons
  - special events
  - baseball
  - softball
  - outdoor educational programs
  - field trips
  - an arts-in-the-park program
  - water aerobics
- An extensive winter program that includes:
  - Basketball
  - Volleyball
  - Baton
  - Fitness Classes
  - Thursday Club

Trails are available for walking, biking, and cross-country skiing. There is also a system of VAST and local snowmobile trails maintained by the Vernon Snow Busters. A multipurpose sports field on other town property

close to the park is also available for public use. A year-round activities program is conducted at the elementary school that consists of youth and adult sports.

A volunteer Recreation Board appointed by the Vernon Selectboard oversees the recreation program. The Town of Vernon employs a fulltime Recreation Director and support staff to supervise the leisure activities of all age groups. More than fifty volunteers also support the programs throughout the year.

In 1973 the Town acquired a tract of land called the J. Maynard Miller Town Forest, which abuts the Roaring Brook Wildlife Management Area and encompasses the Black Gum Swamps and other beautiful and interesting natural areas. Large tracts of Vermont Fish and Wildlife land, the Roaring Brook Wildlife Management Area, exist within the Town. Some of these lands are not accessible except through private property. The Recreation Department has been involved in cutting and marking trails, drawing a map and working with the Miller family to accomplish installation of a permanent kiosk at the entrance to the Town Forest. Trails are used for hiking, biking, cross-country skiing, and horseback riding.

There is a fifty-foot-wide access road and approximately one acre of land bordering Lily Pond so that access will always be available to the public for canoeing, kayaking, ice skating, and bird watching.


Dave Emery, Emergency Management Director

A small roadside area, Indian Point Picnic Area, was developed in memory of Mrs. Clara Lou Cooper. It shall be maintained for public picnicking.

Public Recreational Resources Policies:

Policy 11.9: The use and development of land and waters should occur in such a way as not to significantly diminish the value and availability of outdoor recreational activities.

Policy 11.10: Existing access to land and water areas of high outdoor recreational potential shall be protected and desirable rights of way to these areas should be pursued by the Town.

Policy 11.11: All town parks will be well maintained and be accessible to the physically-challenged.

Health

Hospital based comprehensive home care is provided by the Southern Vermont Home Health Agency. The Vermont Department of Health continues to work with communities to provide health care in other areas including maternal and child health programs, communicable disease prevention programs, and health promotion programs for all ages. The Vernon pre-school/well child clinics, which are conducted on a regular basis by the Vermont Department of Health, provide well child care according to the guidelines set forth by the American Academy of Pediatrics.

Special services available to residents of Vernon are provided through the Winston Prouty Center for Child Development, the Visiting Nurse Association, Brattleboro Area Hospice, BAYADA Home Care, and the Speech Therapy Services through the Supervisory Union. The Women's Crisis Center, located in Brattleboro, operates a shelter which provides safety and counseling for victims of sexual assault and battering.


Cribbage Club

Community Mental Health Services are provided through Health Care and Rehabilitation Services, which sponsor Mental Health Services of Southeastern Vermont. These services include counseling (in office and schools), partial hospitalization, aftercare and many other special services. The Brattleboro Retreat offers mental care to area residents.

Health Care Facilities

Vernon has exemplary health resources within a reasonable distance. Emergency medical support and ambulance service are provided for by Rescue Inc. based in Brattleboro.

Table 11.1: Health Care Facilities within 25 miles of Vernon

Name of Facility	Location
Brattleboro Memorial Hospital	Brattleboro
Brattleboro Retreat	Brattleboro
Grace Cottage Hospital	Townsend, VT
Baystate/Franklin Medical Center	Greenfield, MA
Farren Care Center	Montague, MA
Dartmouth Hitchcock-Keene Clinic	Keene, NH
Dartmouth Hitchcock-Cheshire Medical Cen.	Keene, NH

Table 11.2: Health Care Facilities Farther to the North/South

Name of Facility	Location
Dartmouth Hitchcock Medical Center	Lebanon, H
Hitchcock Clinic	Hanover, NH
Bay State Medical Center	Springfield, MA

The Council on Aging provides resource information and health services for senior citizens, such as monthly health clinics at the Brattleboro Memorial Hospital, a Meals Program in Brattleboro, and local transportation services. Brattleboro is also host to a Senior Center and senior daycare at The Gathering Place.

Emergency Management

Vernon has an Emergency Management Director and staff appointed by the Vernon Selectboard. The staff typically consists of town officials and volunteer citizens. The Fire, Sheriff, Recreation, and Highway Departments, in addition to the Town Administrator, complement the Emergency Operations Center staff.

The Vernon Selectboard has developed an emergency plan to incidents impacting the health and safety of Vernon residents. Such emergencies may include train derailments, chemical spills, floods, hurricanes, tornadoes, shooters, bomb threats etc.

Patricia O'Donnell, Planning & Economic Dev. Comm.

Response plans are practiced by frequent drills and full participation by the Town in an exercises evaluated by the Federal Emergency Management Agency (FEMA) once every two years. Vernon has a well written and exercised emergency plan. The Town Emergency Operations Center is equipped with radios, telephones, and radiation monitoring equipment. This facility is designed to provide continuous occupancy capability, state-of-the-art communications equipment, and other emergency response capabilities for town emergency response personnel in the event of an emergency condition requiring Town of Vernon intervention. It can be operated as a round-the-clock staffed facility in the event of an emergency.

Emergency response personnel have undergone specialized training to respond to emergency incidents at the site of nuclear waste storage on the Entergy Vermont Yankee site.

Town Government Administration

The official business of the Town is conducted at the annual March meeting. The Vernon Selectboard (5 members), with the support of the Town Administrator, conducts most of the business of the Town between Town meetings. Other elected or appointed officers are: Town Clerk, Town Treasurer, Town School Directors (5 members), Library Trustee (5 members), Road Commissioner (1 member), Planning and Economic Development Commission (7 members), Recreation and Park Board (5 members), the Board of Civil Authority, comprised of the Vernon Selectboard, Town Clerk and Justices of the Peace who have duties of overseeing elections and carrying out the Election Laws, and Board of Health: Town Health Officers and Selectboard. A management audit was conducted in 1991 in order to improve the efficiency of all departments.


Vernon Selectboard – Josh Unruh, Jeff Dunklee, Chris Parker, Sandra Harris & Jean Carr with Town Administrator Michelle Pong

12 - LAND USE

Goals
Promote a balanced variety of land use types that will enhance the quality of life, economic opportunities, and environmental quality of the area. The land use plan should facilitate cost effective and efficient provision of public services to support this growth. Utilize land use planning to encourage responsible development, conserve natural resources, protect agricultural lands and foster a positive community identity.

Narrative
This Land Use section presents the Town's desired vision of its future. It considers the data, objectives, policies, and recommendations contained in the previous sections in conjunction with the existing uses of land to arrive at desired future land use. It addresses several categories of broad issues contemplated in and brought forward from prior Town Plans. These topics include the capability of the land, the protection of natural resources, guidance of public and private capital investment, and planning for growth. Significant future input that should be incorporated when available will be the result of ongoing local and regional efforts to plan for the eventual closure of Vermont Yankee.

Capability of the land refers to the ability of the environment, primarily soil and water resources, to accommodate and support various land uses. Protection of natural resources refers to ensuring the future preservation of Vernon's natural assets; including valuable agricultural soils, clean water, and plant and animal communities. Guiding the direction and location of capital investments will help shape the future of the town and should go hand in hand with planning to accommodate and guide future growth and development.

Existing Land Use
As shown on the existing land use map there are substantial portions of land owned by the Town of Vernon, the state of Vermont and those governed by Conservation Easements. There are also a few large, active gravel pits. Large amounts of land utilized for agriculture.

The Existing Land Use by Parcel Map shows the dominant land use on each parcel. A more detailed description of the land use categories displayed on the map are as follows:

- Farms – lands that are identified by soil characteristics appropriate to agricultural land; appropriate size of the parcel and use of adjacent land; their importance in maintaining the agricultural viability of Vernon and the importance of the land, as agricultural land, to the character of Vernon. Preservation of agricultural lands should remain a priority and development in these areas should be limited.

- Undeveloped Land – Includes private land with conservation easements, public land managed for recreation, conservation, and/or open space. These lands are already conserved or have high potential and/or desirability for conservation to protect very high resource values. These include lands in and around state owned lands of the Roaring Brook Wildlife Management Area and along or near the shore of the

Connecticut River. In many cases there is limited access to improved public roads, utilities, and services and there are some limitations for development. These areas can provide linkage to similar, often contiguous lands, in neighboring towns and states.

This also includes lands having significant resource values to protect for the future. These lands are largely undeveloped and have high natural, recreational, scenic, or other resource values, such as timber, gravel, and river frontage. They also frequently have some constraints for development, such as steep slopes, shallow soils, or lands identified in the flood resiliency plan.

- Public Services/Cultural – Includes lands reserved for public recreational activity, including existing facilities and some small adjacent forests as well as public water access. It also includes land associated with public facilities, including the Vernon Elementary School, the Vernon Free Library, the Vernon Town Offices, the Highway Garage, and the Vernon Volunteer Fire Station. Cemeteries, churches, a museum, and historical structures also contribute to community culture.

- Industrial/Utility – Includes lands accommodating existing industrial and/or utility uses and development. They generally have few development constraints and most have ready access to transportation by truck or rail.

- Commercial – lands that support and can accommodate commercial activities

- Residential and Vacant Residential and Rural – Includes areas intended to accommodate existing and future residential development. These lands generally have readily available road access and slight or moderate limitations for development.

Future Land Use

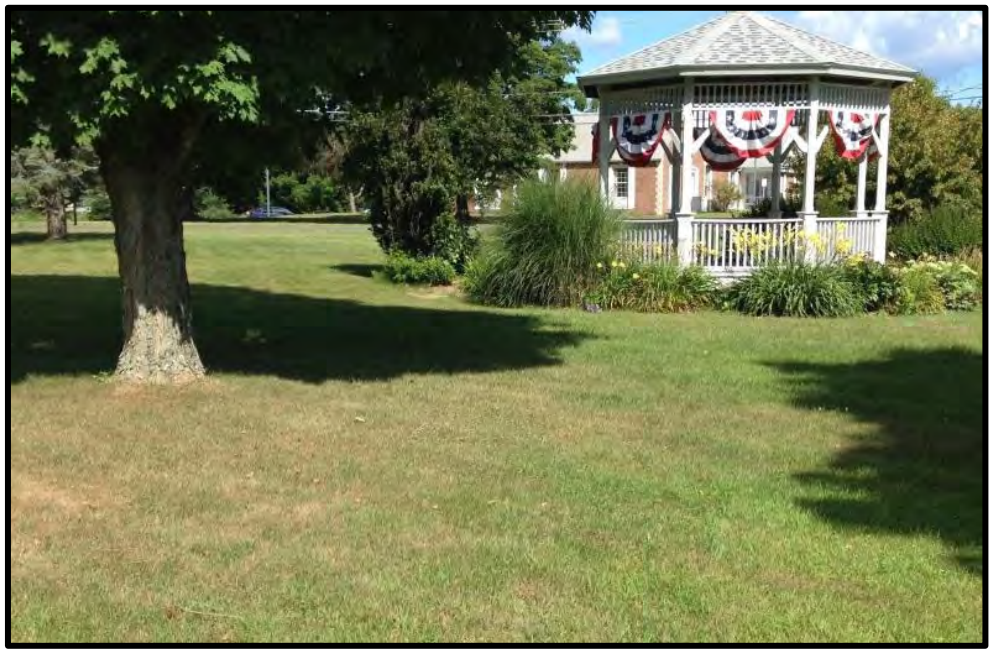
Future land use expectations outline desired development patterns and supporting land uses designed to guide development in a manner that will help Vernon grow and prosper without losing what residents value and love about the area. Vernon aims to take an approach to development that will help Vernon grow jobs and the economy, improve and sustain quality of life, and reduce the cost of providing services. There is little zoning regulation in Vernon, but future land use goals are intended to reflect land use patterns, infrastructure availability, and economic development strategies.

In addition to town-wide planning, in order to ensure responsible growth, Vernon envisions a vital Village Center by concentrating the municipal, commercial and community core of the town while contributing to the economic and social well-being of residents. Centered development activities will preserve the rural, agricultural landscape of the community while supporting vital services. (See State Approved Village Center Designation Map)

The Future Land Use Map depicts the areas described below:

- Conservation (Cn) - lands already conserved or having high potential and/or desirability for conservation to protect very high resource values. These include lands in and around state owned lands of the Roaring Brook Wildlife Management Area and along or near the shore of the Connecticut River. In many cases there is limited access to improved public roads, utilities, and services and there are some limitations for development. These areas can provide linkage to similar, often contiguous lands, in neighboring towns and states.

- Resource (RS) - lands having significant resource values to protect for the future. These lands are largely undeveloped and have high natural, recreational, scenic, or other resource values, such as timber, gravel, and river frontage. They also frequently have some constraints for development, such as steep slopes, shallow soils, or lands identified in the flood resiliency plan.



- Rural (R) – low-density development that is generally located on land containing undeveloped fields or forests. These areas can support limited residential growth due to topography and/or soil conditions. The goal of rural lands is to provide for some housing while maintaining forestry and agriculture. Habitat protection and preservation of the rural landscape are also important.

- Rural Residential (RR) - areas consisting of residences that are easily accessible by the existing road network. The goal of the rural residential area is to provide for low to moderate density housing while maintaining the rural feel. Site specific habitat preservation (e.g., streams, wetlands, vernal pools) and resource use (e.g., agriculture, forestry, outdoor recreation) are encouraged. These areas are intended to accommodate existing and future residential development. These lands generally have readily available road access and slight or moderate limitations for development.

- Mixed Use (MU) - lands with existing higher density residential, commercial, and institutional uses intended to accommodate continuation and expansion of these uses.

- Commercial (C) – lands that support and can accommodate commercial activities.

- Industrial (I) - lands capable of and intended for accommodating existing and expanded industrial uses and development. They generally have few development constraints and most have ready access to transportation by truck or rail.

- Habitat Connectors - land or water, or both, that links patches of wildlife habitat within a landscape, allowing the movement, migration, and dispersal of animals and plants and the functioning of ecological processes.

- Village Center (VC) - mixed use land under official state designation as Village Center. Settlement pattern in this area includes historic structures, residential, commercial, municipal, industrial and commercial uses sited in a closely knit area of town. It is envisioned that this area will provide a focus for Town cultural and social activities and for mixed uses in a traditional New England setting.


Governor Hunt House

State Approved Village Center Designation:
The Vernon Village Center consists of: the land of the Vernon Elementary School; all land north of the school property and between Governor Hunt Road and Fort Bridgman Road (Route 142) including the land of the Town Office Building; all properties with frontage on the east side Governor Hunt Road beginning with the Governor Hunt House, north to the railroad tracks; and two residential properties on the west side of Governor Hunt Road south of the Vernon Elementary School. No property west of Fort Bridgman Road is included.

The Village Center (VC) designation is non-regulatory. Vernon has no zoning; the VC designation does not create zoning. The VC is not an historic district. The Vermont VC designation process recognizes and encourages local efforts to revitalize Vermont's traditional village centers, as well as to create new village centers such as in Vernon's case. Designated VCs receive priority consideration for state grants and other resources. Commercial property owners in designated VCs are eligible for tax credits to support building improvements.

VC designation will support, encourage, and expand community interaction, enhancing the assets of the Village of Vernon, such as the Town Office Building, the Vernon Elementary School, and the Village Green with bandstand and veterans monument. VC designation will facilitate achieving the town's goals of:

- a more vibrant center for the town;
- the development of a store and café as a social gathering place; and
- the development of additional housing and space for commercial enterprises.

During the process of Town Plan Update the Cold Brook Store opened on Governor Hunt Road, near the Designated Village Center Area.

When relocating town infrastructure in the future (such as the post office, fire station, or town garage) the Town will give priority to locating such buildings in or adjacent to the VC.

The vitality of this area will be enhanced by being designated as a VC. The Vermont VC program provides opportunities for eligible projects within the designated area to receive technical assistance and state funding. The program includes a variety of tax credit incentives to help reduce the costs of façade and life-safety/ADA compliance code related improvements, and some data and network installations and related HVAC costs.

Eligible projects are given priority consideration for Municipal Planning Grants, grants from the Agency of Transportation, Agency of Natural Resources, and the Community Development Block Grant Program (CDBG.)

A VC designation for the Village of Vernon offers the benefits of:

- more economical uses of public facilities;
- the preservation of more of our forests, farms and open spaces for future generations;
- easier access for our children to friends and community life in the village center;
- the ability for seniors without access to private transportation to live independently in enhanced surroundings; and
- the ability for citizens, being close to neighbors, to take better care of each other.

Vernon Elementary School, located within the VC area, has a capacity of 300 students but a current enrollment of only about 165. Development of a VC can attract a larger population to Vernon, more efficiently using our school facility and potentially lowering our cost per student.

Development of new housing and commercial uses within the VC area ideally will follow a historic settlement pattern typically found in compact New England villages. To help encourage an appropriate development pattern in the VC, the Town will undertake a master planning process that will, with extensive participation and input from residents and the assistance of professional planners, create a plan for future development in the VC area. This plan will represent the Town's desires, but will not restrict the options of property owners with regard to development of their properties.

As the Vermont Yankee Nuclear Power Station (VY) is decommissioned over time, property of VY such as the historic Governor Hunt House may become available for adaptive re-use by the town. A VC designation can help attract funding for such adaptive re-use. As the VY site is decommissioned, it represents a potential area for eventual expansion of the Vernon VC. Similar to the Governor Hunt House, VC designation may facilitate the restoration of other historic buildings, as well as the preservation of scenic assets.

Future Land Use Policies:

Policy 12.1: Encourage industrial development on VY site

Policy 12.2: Encourage industrial development on other sites with minimal constraints

Policy 12.3: Encourage reuse of existing small commercial properties whenever possible, including but not limited to:

George's Mill
JLS Auto
Schoolhouse Grocery
Cersosimo Pit
Zaluzny Pit
LeRock Pit
Village Center
Stebbins Road Lumber Yard
Renaud/Zaluzny offices

Policy 12.4: Support appropriate development in the state designated Village Center.

General Land Use Goals

1. Promote a balance between private and public investment that grows in reasonable proportion to each other without undue stress on the community.

Policy 12.5: Support development that provides the Town of Vernon with its required public services need and an adequate tax base to support these services.

Policy 12.6: Promote and encourage commercial, municipal and residential development in the newly designated Village Center in consideration of the Village Center Master Plan.

Recommended Actions:

1. Apply for renewal of Village Center Designation as required.
2. Promote reuse of vacant and underused existing structures.
3. Promote consistency with the Village Center Master Plan.
4. Create a walkable community by working toward safe and convenient pedestrian access to all portions of the village.

Policy 12.7: Encourage development that integrates natural features and resources in order to limit loss of scenic landscapes and wildlife habitats.

Policy 12.8: Encourage and promote the redevelopment of the Vermont Yankee site as parcels become available.

Policy 12.9: Promote recreational development of public lands with consideration to connecting trail systems to adjacent trail systems in neighboring towns and states.

Policy 12.10: An assessment of public investment in municipal services and facilities is requisite to gauging the effects of proposals for private development or subdivision. It is the policy of the Town that increased costs of operation of Town services, which result from development activity shall be weighed in relation to increased tax revenues.

Policy 12.11: Ensure that the pace of development is at a rate or in a manner, which will ensure that the cash flow to the Town can be balanced against necessary or reasonably anticipated increases in public services.

Policy 12.12: Encourage continued promotion and preservation of agricultural lands.

Recommended Actions:

1. Encourage preservation of existing agricultural land by purchasing development rights through recommendation of the Farmland Protection Committee.
2. Reduce the potential for conflict between farms and non-farming neighbors by promoting understanding of the State's Right-To-Farm law and adopting the spirit of the law locally.
3. Encourage new agricultural operations and development through tax incentives and assistance with federal, state and non-governmental resources.

Policy 12.13: Redevelop small commercial properties

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

Policy 12.14: Preserve open space, natural resources, wildlife habitat, and ridgelines by discouraging development in those areas and promoting it in more desirable areas as dictated by the Town Plan.

Recommended Action:
1. Facilitate application for state financial incentives.
2. Acquire development rights through the Farmland Protection Fund and other funding sources.
3. Work with the state to facilitate acquisition of significant wildlife habitat areas.

Policy 12.15: Encourage maintenance and responsible development of recreation land including forests and facilities.

Recommended Actions:
1. Promote use of local recreational lands and facilities through advertisement and ease of use.
2. Promote informal and formal access to rivers and ponds.
3. Encourage development of trail systems designed to protect sensitive habitats while engaging human interaction with the environment.
    A. Continue mapping existing trails and promote regular trail map updates as conditions change.
    B. Connect trail systems to neighboring states and towns.
        a. Encourage land owners to allow connecting trails through private land.
            Support non-profit participation in trail development, including the Vernon Trailbreakers and the Rivers and Trails Committee.
        b. Preserve access to trails for snowmobiling in conjunction with the local Vernon Trailbreakers snowmobile club.
            Map all current trails within town limits.
                i. Evaluate potential year-round use of snowmobile trails.
                ii. Include year-round, public access, snowmobile trails that are suitable for hiking when updating trail maps.

13 - IMPLEMENTATION

The Town of Vernon will implement this plan through pursuing a continuing planning process, coordinating with neighboring towns and regions, participating in Act 250 and § 248 processes, and pursuing policies and recommended actions.

Effective implementation of this Plan requires careful consideration and action by the Townspeople, their Selectboard, Planning Commission, and other local boards, commissions and organizations. As the Town continues to grow and come under additional development pressure, Vernon will need to develop methods to deal with the inevitable problems. Among the many available methods which should be considered are the following:

1. Planning: The existing planning program should be strengthened, with the Planning Commission taking the lead. Discussions of planning issues should be a regular part of their agendas. Effort by all the people of the Town is needed to sustain and enrich such programs.
2. Community Needs/Actions: In many of the issues addressed by the Plan, a set of recommendations is listed indicating items of concern that are offered for consideration and further discussion by the community. Following approval of the Plan, it is suggested that representatives of the community establish a schedule for the discussion and possible implementation of these recommendations.
3. Public Investment: Public investment is one of the most direct means to implement the Town Plan. Public investment can include spending for water, transportation, housing, open space, recreation, education, and more. Funds to pay for these public expenditures can come from a variety of sources including grants, state aid, taxes, and user fees.
4. Land Use Regulations: Zoning bylaws, including shore land and wetland regulations, and subdivision regulations, should be considered to promote the public health and safety, environmental quality, and protection of the quality of life.
5. Land Acquisition: Acquisition by the Town in fee simple, by lease, by easements of development rights, and by gift are the most certain methods for protecting and assuring access and enjoyment of valuable agricultural, recreational, and scenic lands. Landowners can also negotiate conservation agreements with organizations, such as the Vermont Land Trust and the Nature Conservancy, to protect productive agricultural and forestlands, protect wildlife habitat, natural areas, or public recreation lands.
6. Taxation: Vermont's Use Value Appraisal Program encourages long term agriculture and forestry uses of property through tax incentives. The Program encourages the maintenance of undeveloped land for farming, forestry, and public recreation. The Town may also provide property tax relief for qualifying farm, forest, and open space landowners by adopting local tax stabilization programs to reduce local property tax burden. For general purposes, the assessing and taxing of land shall seek to strengthen the policies spelled out in this Town Plan.
7. Voluntary Action: Privately-agreed restrictive covenants binding on purchasers of land, special attention and consideration given by private landowners to the objectives of this Plan and its policies when they decide to build or subdivide, formation of non-profit conservation or community land trusts, participation in the Act 250 review process by abutting landowners, and participation in Town planning by citizens concerned about the future of Vernon are all ways to implement this Plan.

Huckle Hill Senior Housing

14 - STATEMENT INDICATING HOW THIS PLAN RELATES TO DEVELOPMENT TRENDS AND PLANS FOR ADJACENT MUNICIPALITIES, AREAS, AND THE REGION

Goal
While recognizing Vernon's unique position as the gateway to Southeastern Vermont, the Town will strive to encourage cooperation, open and concise communication and understanding with our neighboring towns while protecting the interests of our residents and upholding the policies outlined in the Town Plan.

Narrative
In preparing this Plan there was due consideration of development trends, the Town Plans of neighboring Vermont municipalities, and the Windham Regional Plan. This Town Plan addresses development trends in Vernon and in the surrounding area by proposing future land uses that preserve existing development patterns in Vernon and adjacent areas while protecting valuable and common resources. We find it is compatible with the Town Plans of Brattleboro and Guilford and with the Windham Regional Plan.

The Town of Vernon is fortunate to have the Town of Guilford as one of our neighboring towns. The two towns share common interests, concerns, and goals. Cooperation has occurred in the development of roads, mapping and finances. Examples of this cooperative effort include the following:

Planning & Economic Dev. Commission – Patty O'Donnell, Jessica Freeman-Earp, Jeffrey Dunklee, Martin Langeveld, Maddy Arms, Bob Spencer, Janet Rasmussen (2018)

1. Roads - Vernon and Guilford Highway Departments have an agreement for exchange of road maintenance and some sharing of equipment.
2. Finances - The Vernon Finance Committee has met with Guilford representatives to assist them in the establishment of a Guilford Capital Plan and budget.
3. Like Guilford's Town Plan, the Vernon Town Plan advocates for responsible development around a compact Village Center in a manner that protects the rural character of our communities. Some coordination with the former and current Town Administrator of Guilford has taken place in order to benefit from their experiences and ensure compatible development patterns at local borders.
4. Vernon officials have worked closely with other Windham County town officials, non-profit groups and concerned citizens during discussions regarding the future of the Vermont Yankee site.
5. Vernon has participated in the Nuclear Decommissioning Citizens Advisory Panel by appointing a local representative.
6. Continued exploration of shared services is ongoing.
7. The VAST snowmobile trails in Vernon connect to trails in Guilford and to SAM snowmobile trails over the border of Massachusetts.
8. The Friends of Vernon Center, Inc. have worked with the Friends of Algiers to share planning strategies that prompted the success of state Village Center Designation in Vernon.

Abutting Guilford, across the shared transportation corridors of Route 5 and I-91, are protected lands of the Roaring Brook Wildlife Management Area in both towns. Current and proposed land uses along the shared border are compatible.

Vernon is also fortunate to have the Town of Brattleboro, with its much larger population, as our neighbor to the north. As an option for school choice and as a member of the Windham Southeast Supervisory Union Vernon sends students to Brattleboro Area Middle School and Brattleboro Union High School for schooling beyond grade six. The Vernon Town Administrator has met with the Brattleboro Town Manager to explore further opportunities for cooperative efforts and informally engages with other area managers and administrators on a regular basis. Vernon Town officials regularly meet with Brattleboro colleagues to share experience and knowledge.

The Town of Brattleboro shares a small portion of Vernon's northern border and is connected by State Route 142. Currently the area is occupied by commercial/industrial properties and neither town anticipates any change in that composition. The land uses along the shared border are compatible.

Vernon shares a border with Northfield and Bernardston, Massachusetts to the south. Development trends and goals are similar to these towns, particularly in the desire to protect and promote agriculture and open spaces while promoting responsible growth in more centralized areas of town. Across the Connecticut River and the span of a merchant hydroelectric dam is Hinsdale, NH. The dam lies within the border of both towns. Riverfront development has been similar in each town, with minimal disruption of the shore line. Neighboring Town Plans contain complimentary parallels to Vernon's Town Plan that encourage continued cooperation across state lines.

The Windham Regional Commission proposed land use map includes a Village Center which coincides with the mapped Village Center Designation approved by the State in 2017. All other development proposals are compatible with the Vernon Future Land Use map.

Based upon an understanding of the plan documents of Brattleboro, Guilford, and the Windham Regional Commission, no conflicts exist between these documents and the Vernon Town Plan.

Recommended Actions

1. As needed, meet jointly with the Guilford and/or Brattleboro Planning Commissions to discuss upcoming projects and opportunities for cooperation and coordination of efforts.
2. Review neighboring Town Plans, including those in other states, when considering significant development along borders.
3. Consider neighboring impact when evaluating future projects.
4. Continue to seek out opportunities for shared services and equipment with neighboring towns.
5. Continue open dialogue with neighboring town leaders and personnel.

MAPS

- **Existing Land Use**
- **Natural Resources**
- **Future Land Use**
- **Transportation, Community Facilities, and Utilities**
- **Water Resources**
- **Solar Energy Potential**
- **Wind Energy Potential**
- **Designated Village Center**

Existing Land Use
Town of Vernon, Vt.
May 2018

GIS
Vermont Geographic Information System
WINDHAM REGIONAL COMMISSION
139 Main St • Suite 505 • Brattleboro, VT 05301
(802) 257-4547 www.windhamregional.org

0.5 0 0.5 1 Mile

scale 1:36,000 1 inch = 3,000 feet

Buildings (from E911):
- Commercial
- Industrial
- Public/Institutional
- Single-family
- Multi-family
- Other / Unknown

Parcel line

Town of Vernon land

State of Vermont land

Conservation easement

Farmland

Active gravel pits

Electric Transmission Lines

Roads

Railroad

Streams, river, pond

Data sources:

- Building locations and type are from the Vermont Enhanced 9-1-1 program and are current to 2018. Building type coding is provided by the Town of Vernon E911 coordinator.

- Parcel lines are from Vernon's 2015 digital tax map data developed by Cartographic Technologies, Inc. (CTI), East Dummerston, Vt.

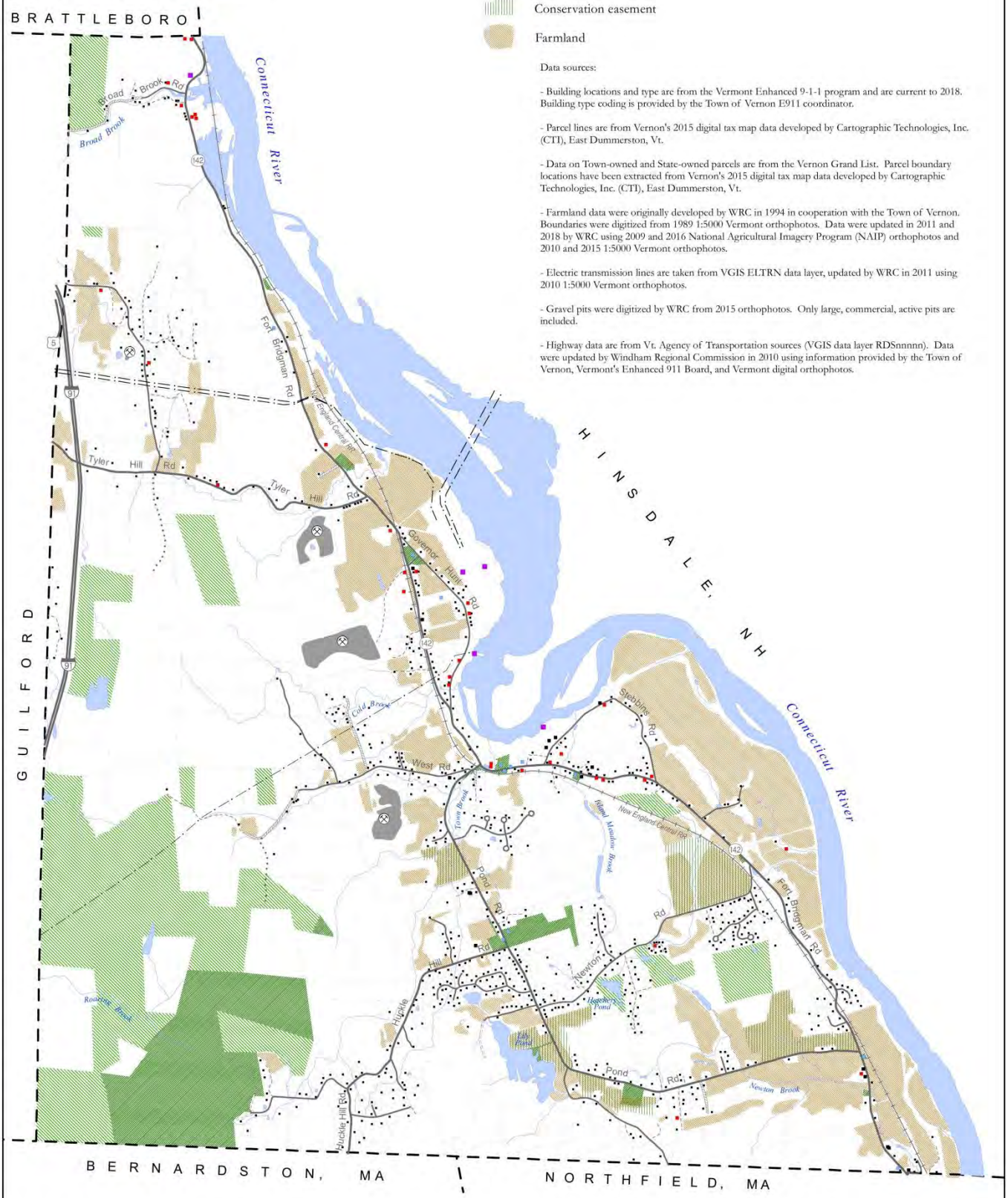
- Data on Town-owned and State-owned parcels are from the Vernon Grand List. Parcel boundary locations have been extracted from Vernon's 2015 digital tax map data developed by Cartographic Technologies, Inc. (CTI), East Dummerston, Vt.

- Farmland data were originally developed by WRC in 1994 in cooperation with the Town of Vernon. Boundaries were digitized from 1989 1:5000 Vermont orthophotos. Data were updated in 2011 and 2018 by WRC using 2009 and 2016 National Agricultural Imagery Program (NAIP) orthophotos and 2010 and 2015 1:5000 Vermont orthophotos.

- Electric transmission lines are taken from VGIS ELTRN data layer, updated by WRC in 2011 using 2010 1:5000 Vermont orthophotos.

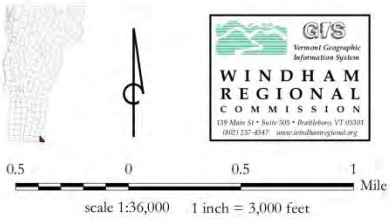
- Gravel pits were digitized by WRC from 2015 orthophotos. Only large, commercial, active pits are included.

- Highway data are from Vt. Agency of Transportation sources (VGIS data layer RDSnnnnn). Data were updated by Windham Regional Commission in 2010 using information provided by the Town of Vernon, Vermont's Enhanced 911 Board, and Vermont digital orthophotos.



Nov 2018; u:\GIS\Towns\Vernon\Maps\TP2018_ELU_11x17.mxd

Natural Resources
Town of Vernon, Vt.
May 2018



Streams, river, pond

Significant Natural Community

Natural Heritage occurrence: plant or animal

Deer wintering area

Conservation land, public or privately owned

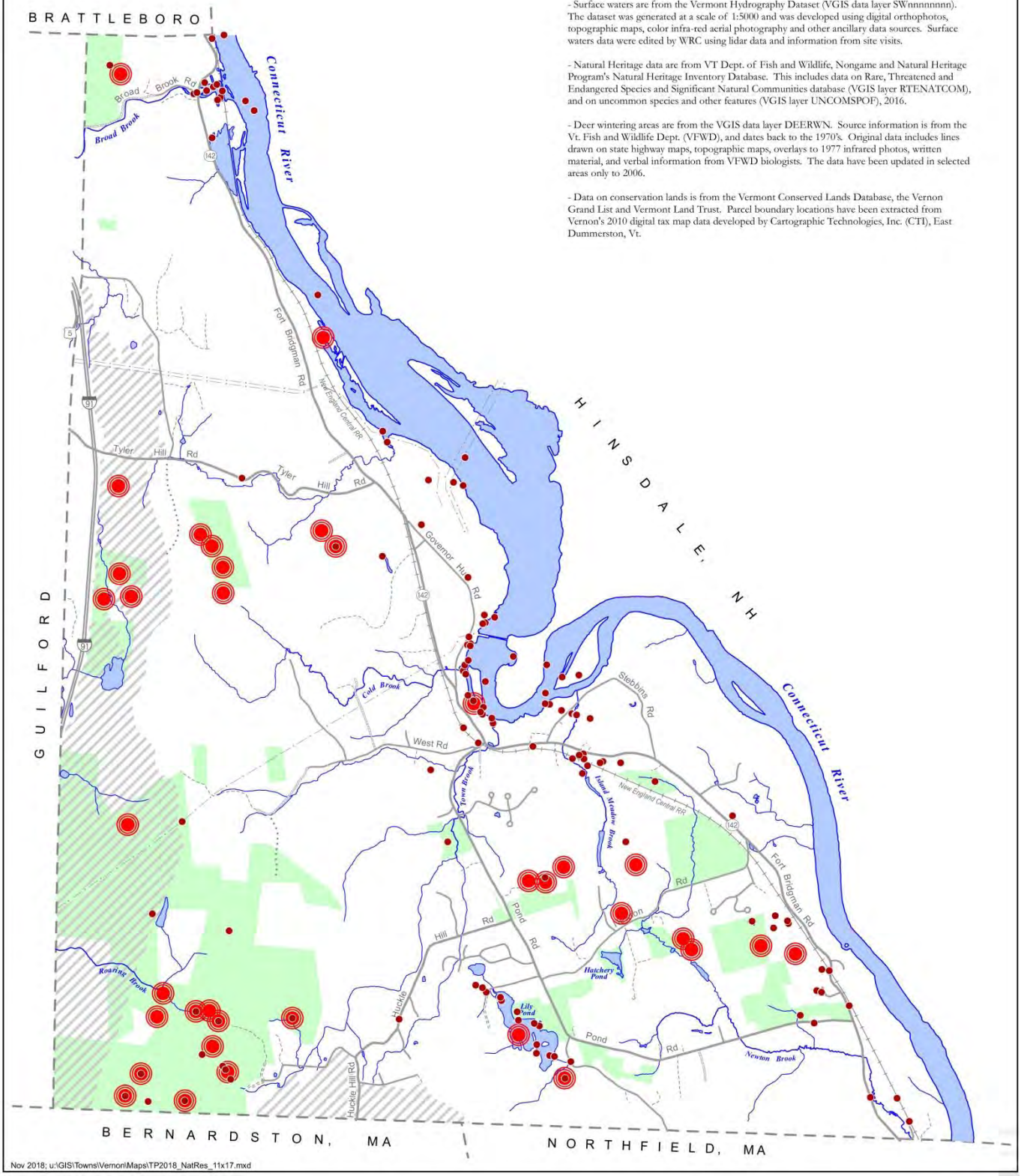
Data sources:

- Surface waters are from the Vermont Hydrography Dataset (VGIS data layer SWnnnnnnnn). The dataset was generated at a scale of 1:5000 and was developed using digital orthophotos, topographic maps, color infra-red aerial photography and other ancillary data sources. Surface waters data were edited by WRC using lidar data and information from site visits.

- Natural Heritage data are from VT Dept. of Fish and Wildlife, Nongame and Natural Heritage Program's Natural Heritage Inventory Database. This includes data on Rare, Threatened and Endangered Species and Significant Natural Communities database (VGIS layer RTENATCOM), and on uncommon species and other features (VGIS layer UNCOMSPOF), 2016.

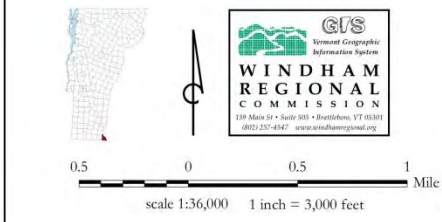
- Deer wintering areas are from the VGIS data layer DEERWN. Source information is from the Vt. Fish and Wildlife Dept. (VFWD), and dates back to the 1970's. Original data includes lines drawn on state highway maps, topographic maps, overlays to 1977 infrared photos, written material, and verbal information from VFWD biologists. The data have been updated in selected areas only to 2006.

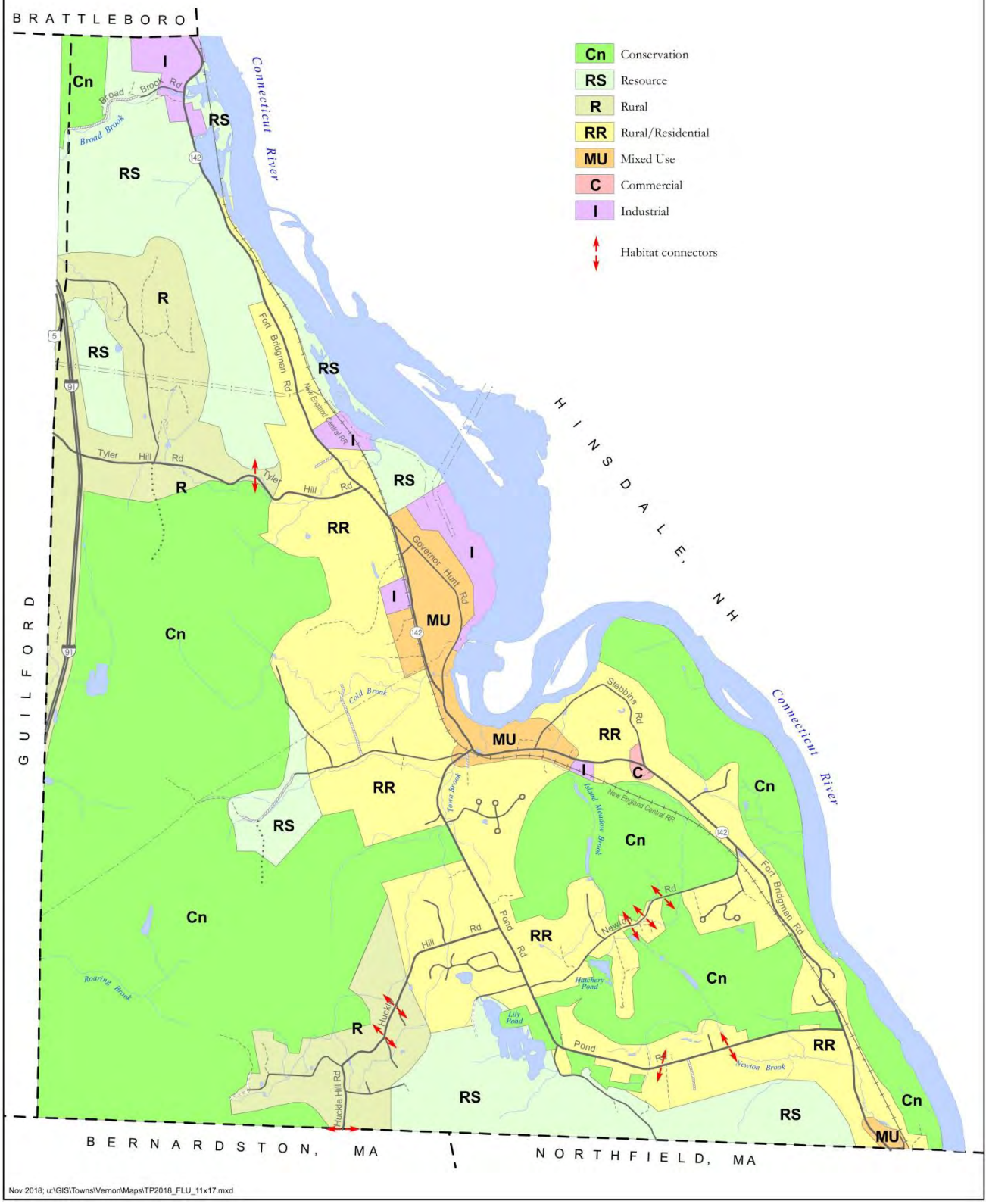
- Data on conservation lands is from the Vermont Conserved Lands Database, the Vernon Grand List and Vermont Land Trust. Parcel boundary locations have been extracted from Vernon's 2010 digital tax map data developed by Cartographic Technologies, Inc. (CTI), East Dummerston, Vt.



Nov 2018; u:\GIS\Towns\Vernon\Maps\TP2018_NatRes_11x17.mxd

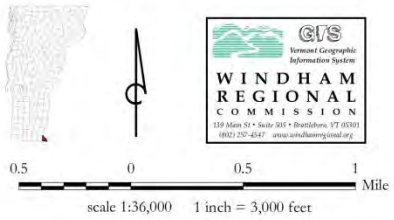
Future Land Use
Town of Vernon, Vt.
May 2018





Nov 2018; u:\GIS\Towns\Vernon\Maps\TP2018_FLU_11x17.mxd

Transportation, Community Facilities, and Utilities
Town of Vernon, Vt.
May 2018



- Interstate Highway
- State highway
- Class 2 town highway - paved
- Class 3 town highway - paved
- Class 3 town highway - unpaved
- Class 4 town highway, unpaved
- Class 4 town highway, impassable
- Legal trail
- Private road/drive
- New England Central Railroad
- Streams, river, pond
- Electric transmission line
- Utility infrastructure
- Community facility
- Town of Vernon land
- State of Vermont land
- Cemetery
- Church

Data sources:

- Highway data are from Vt. Agency of Transportation sources (VGIS data layer RDSnnnnn), 2018, with minor updates from WRC.

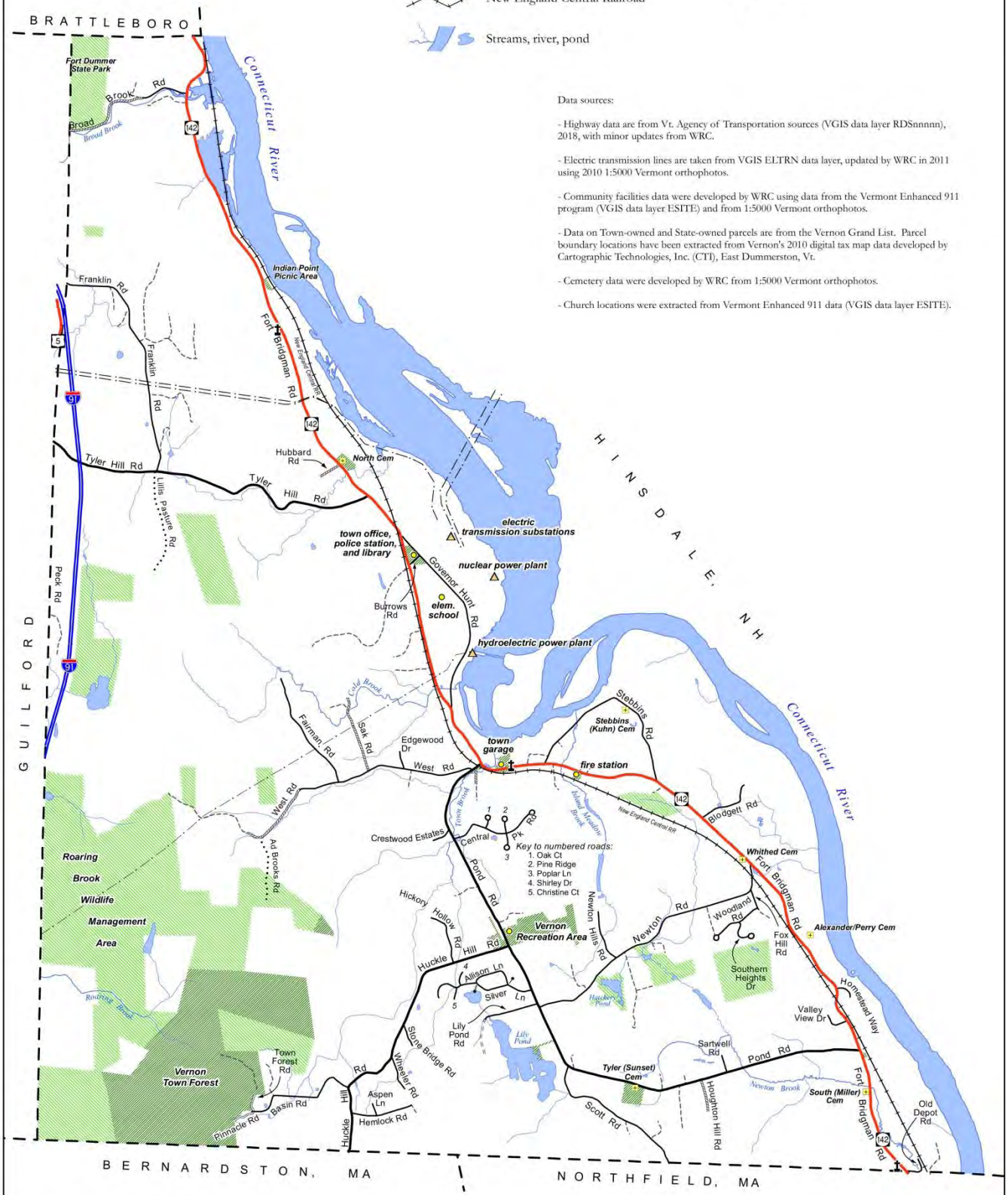
- Electric transmission lines are taken from VGIS ELTRN data layer, updated by WRC in 2011 using 2010 1:5000 Vermont orthophotos.

- Community facilities data were developed by WRC using data from the Vermont Enhanced 911 program (VGIS data layer ESITE) and from 1:5000 Vermont orthophotos.

- Data on Town-owned and State-owned parcels are from the Vernon Grand List. Parcel boundary locations have been extracted from Vernon's 2010 digital tax map data developed by Cartographic Technologies, Inc. (CTI), East Dummerston, Vt.

- Cemetery data were developed by WRC from 1:5000 Vermont orthophotos.

- Church locations were extracted from Vermont Enhanced 911 data (VGIS data layer ESITE).



Nov 2018; u:\GIS\Towns\Vernon\Maps\TP2018_TransComm_11x17.mxd

Water Resources
Town of Vernon, Vt.
May 2018

GIS
Vermont Geographic Information System
WINDHAM REGIONAL COMMISSION
139 Main St • Suite 305 • Brattleboro, VT 05301
(802) 257-4547 • www.windhamregional.org

0.5 0 0.5 1 Mile

scale 1:36,000 1 inch = 3,000 feet

- Perennial stream
- Intermittent stream
- River or pond
- Wetland
- River corridor *
- Special Flood Hazard Area

* Official source of River Corridor data is tinyurl.com/floodreadyatlas. Where river corridors are not mapped, the corridor is taken to be the area within 50 feet of perennial streams.

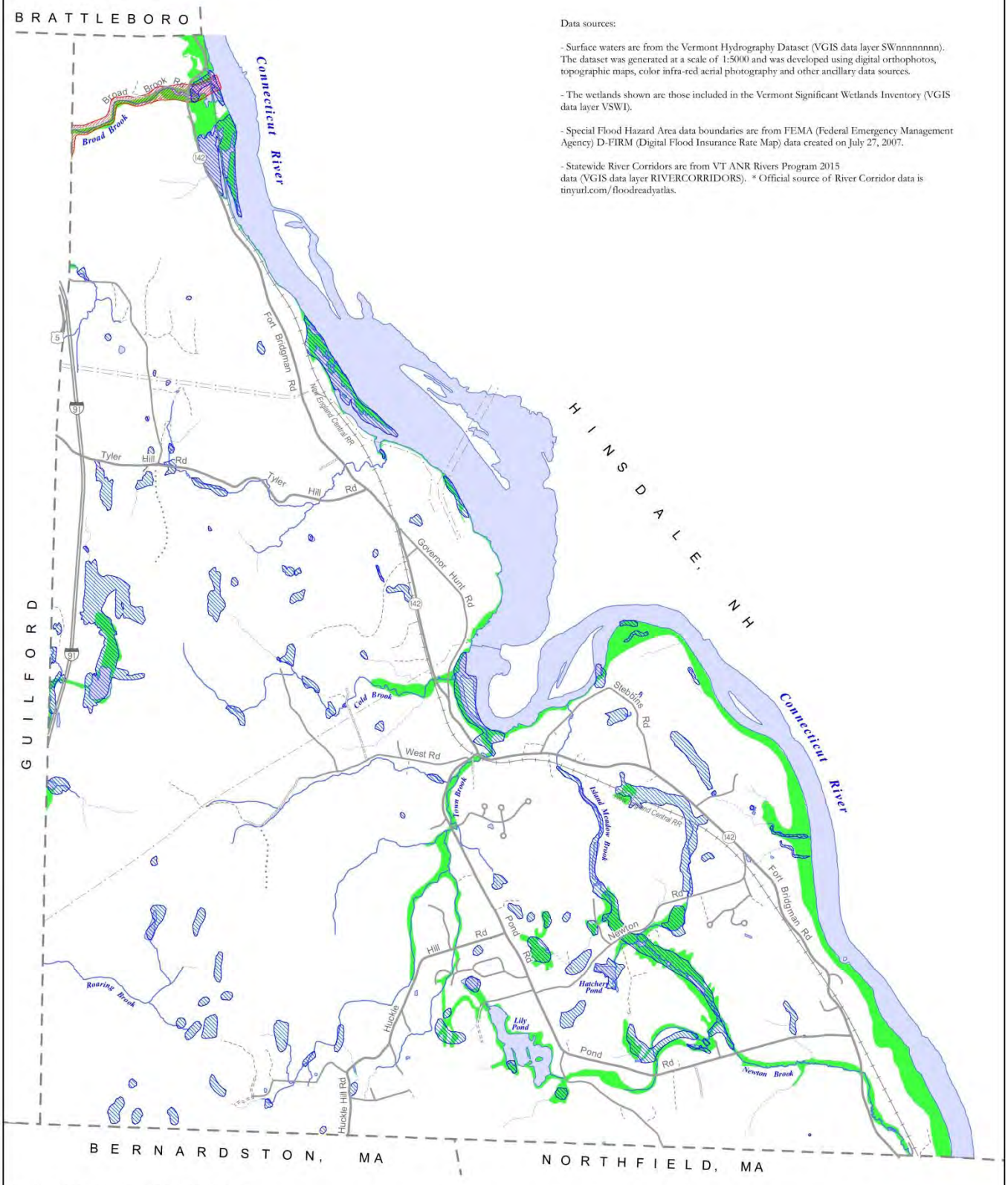
Data sources:

- Surface waters are from the Vermont Hydrography Dataset (VGIS data layer SWnnnnnnnn). The dataset was generated at a scale of 1:5000 and was developed using digital orthophotos, topographic maps, color infra-red aerial photography and other ancillary data sources.

- The wetlands shown are those included in the Vermont Significant Wetlands Inventory (VGIS data layer VSWI).

- Special Flood Hazard Area data boundaries are from FEMA (Federal Emergency Management Agency) D-FIRM (Digital Flood Insurance Rate Map) data created on July 27, 2007.

- Statewide River Corridors are from VT ANR Rivers Program 2015 data (VGIS data layer RIVERCORRIDORS). * Official source of River Corridor data is tinyurl.com/floodreadyatlas.



Nov 2018; u:\GIS\Towns\Vernon\Maps\TP2018_NatRes_11x17.mxd

Town of Vernon
Solar Energy Potential

Prime Solar Energy Resource
generally adequate solar resources and no identified constraints (i.e., no "known" and no "possible" constraints)

Secondary Solar Energy Resource
generally adequate solar resources and no "known" constraints, but at least one "possible" constraint

"known" and "possible" constraints are identified by the Vt. Public Service Department in their Act 174 Energy Planning Standards

0 0.5 1 2 Miles

Existing solar installations:
- 1 - 19 kW (generally smaller-scale on-site:
- 20 - 70 kW residence, farm, school, or business)
- 140 - 150 kW (generally larger-scale
- 360 - 2000 kW commercial/utility solar farms)

Existing solar installations from the Vermont Energy Atlas, developed from Certificates of Public Good; they may correspond to the address of the certificate holder and not the actual location of the installation.

Note: prime vs. secondary solar energy resource is NOT based on solar intensity.

Substations
3 Phase Power Lines
Transmission Lines

5 acres
10 acres
50 acres
100 acres

March 2017

map by Windham Regional Commission, Brattleboro, Vt.
March 2017; u:\GIS\projects\Energy\maps\Town_11x17_WindEnergy.mxd

Town of Vernon
Wind Energy Potential

Prime Wind Energy Resource
generally adequate wind resources and no identified constraints (i.e., no "known" and no "possible" constraints)

Secondary Wind Energy Resource
generally adequate wind resources and no "known" constraints, but at least one "possible" constraint

"known" and "possible" contraints are identified by the Vt Public Service Department in their Act 174 Energy Planning Standards

0 0.5 1 2 Miles

5 acres
10 acres
50 acres
100 acres

Existing Small Wind
Existing Commercial Wind
Commercial Wind In Development

No existing wind energy generation in this area.

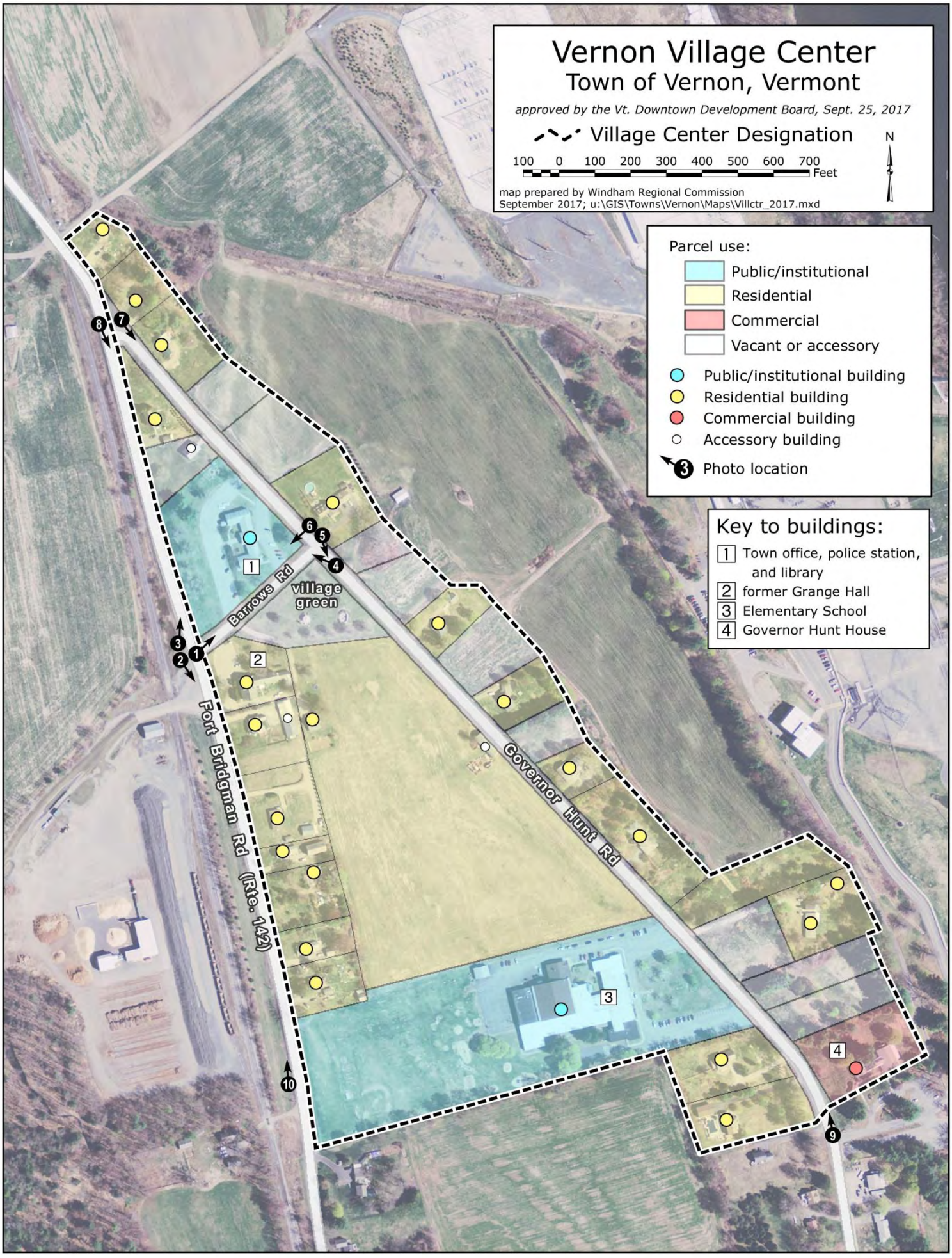
Existing wind from the Vermont Energy Atlas, developed from Certificates of Public Good. They may correspond to the address of the certificate holder and not the actual location of the installation.

Note: prime vs. secondary wind energy resource is NOT based on wind speed.

Substations
3 Phase Power Lines
Transmission Lines

March 2017

map by Windham Regional Commission, Brattleboro, Vt.
March 2017; u:\GIS\projects\Energy\maps\Town_11x17_WindEnergy.mxd


Vernon Village Center
Town of Vernon, Vermont
approved by the Vt. Downtown Development Board, Sept. 25, 2017
Village Center Designation
N
100 0 100 200 300 400 500 600 700
Feet
map prepared by Windham Regional Commission
September 2017; u:\GIS\Towns\Vernon\Maps\Villctr_2017.mxd
Parcel use:
Public/institutional
Residential
Commercial
Vacant or accessory
Public/institutional building
Residential building
Commercial building
Accessory building
Photo location
Key to buildings:
1 Town office, police station, and library
2 former Grange Hall
3 Elementary School
4 Governor Hunt House
Barrows Rd
village green
Fort Bridgman Rd (Rte. 142)
Governor Hunt Rd