Town of Richmond
Planning Commission Meeting
AGENDA
Wednesday October 7th, 2020, 7:00 PM

Due to restrictions in place for COVID-19, and in accordance Bill H.681 **this meeting will be held by login online and conference call only**. You do not need a computer to attend this meeting. You may use the "Join By Phone" number to call from a cell phone or landline. When prompted, enter the meeting ID provided below to join by phone. For additional information and accommodations to improve the accessibility of this meeting, please contact Ravi Venkataraman at 802-434-2430 or at rvenkataraman@richmondvt.gov

Join Zoom Meeting: https://us02web.zoom.us/j/83865973702
Join by phone: (929) 205-6099
Meeting ID: 838 6597 3702

1. Welcome and troubleshooting

2. Adjustments to the Agenda

3. Public Comment for non-agenda items

4. Approval of Minutes
    - September 16th, 2020

5. Review of Housing Committee applicants

6. Review of statement of policy goals guiding our zoning work

7. Invitation for residents to participate in the conversation

8. Developing a model for mixed use in the village by looking at the specifics of the current Residential/Commercial District

9. Discussion on “Zoning for Great Neighborhoods”

10. Other Business, Correspondence, and Adjournment
    - Notice from Town of Hinesburg on Town Plan update

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RE: Richmond Housing Committee Application

July 31st, 2020

Attention: *Ravi Venkataraman, Town Planner*

I am applying for membership of the newly formed Richmond Housing Committee. As a current resident of Richmond, area landlord, PMI Certified Project Management Professional (PMP) and investor, I feel that I could contribute to accomplishing the goals of the committee.

For the last 7 years, my wife and I have owned and managed two multi-family buildings in nearby Williston and two years ago purchased a home with an in-law apartment here in Richmond. We have seen first-hand the impacts of the housing shortage here in Vermont, but we also recognize its unique charm and beauty. I want to be part of seeing Vermont grow in a thoughtful, sustainable and welcoming way to preserve what we love about Vermont. I was very glad to hear that Richmond was forming this committee to do just that!

As a certified project manager, holding an MBA degree, and having lead teams for the past 5 years, I know I will be able to help assist this committee in achieving the stated short term and long-term goals. I have experience in sourcing and working with demographic information, combing through town records and reviewing town plans.

While we have only been here for two short years, we are quickly building networks into the community. I have two young daughters who love visiting the library, getting creemees at Hatchet and who learned to ice skate at the rink in Volunteers Green. In the summer months I ride the trails at Cochran's or Johnny Brook, while my wife looks forward to evening picnics in the park. We want to further invest in our community and ensure its growth is welcoming, thoughtful and sustained.

I look forward to hearing more about the committee and discuss how I can help contribute to its success.

Thank you,

Mark Hall

802-999-1571

markphall@gmail.com

Richmond Planning Commission
REGULAR MEETING MINUTES FOR September 16, 2020

Members Present:	Chris Cole, Scott Nickerson, Virginia Clarke, Chris Granda, Alison Anand (joined at 8:05 pm), Mark Fausel,
Members Absent:	Joy Reap, Jake Kornfeld, Brian Tellstone,
Others Present:	Ravi Venkataraman (Town Planner/Staff), Marianne Barnes, Fran Thomas, Marshall Paulsen, Cathleen Gent, Ryan Ackley, Marianne Kittenger, Kevin Kittenger

Chris Cole opened the meeting at 7:05 pm.

2. **Adjustments to the Agenda**

None

4. Public Comment for non-agenda items

Marshall Paulsen said he is here to observe and thanked the commission for letting him sit in. Ravi Venkataraman asked Cole for a roll call of all persons present. Marianne Barnes, Fran Thomas, Marshall Paulsen, Cathleen Gent, Ryan Ackley, Marianne Kittenger, and Kevin Kittenger introduced themselves for the record.

3. Approval of Minutes

Motion by Mark Fausel, seconded by Virginia Clarke to approve the September 2, 2020 Planning Commission Meeting Minutes.

Discussion: Committee members discussed the procedure for approving the minutes, and whether members needed to have attended the meeting to approve the minutes. Clarke stated that Fausel attended but the minutes didn't list him as present.

Fausel amended the motion to approve the minutes with the edit that Mark Fausel attended the meeting, seconded by Clarke. Voting: unanimous. Motion carried.

3. Public Hearing: Requirements for property owners claiming exemption per 24 V.S.A. §4413 (12:12)

Venkataraman overviewed the basis of the proposed zoning amendments. Clarke said that the amendments are a clarification to the requirements by adding additional details, without providing additional rights or taking away rights.

Motion by Fausel to move to finalize the changes to Town Zoning Regulations Sections 1.2, 2.4.5, 5.1, and 5.10.4 and direct staff to distribute copies of the amendment proposal to the Selectboard, seconded by Chris Granda. Voting: unanimous. Motion carried.

4. Discussion on rezoning the southern portion of the Richmond Village (15:45)

a) Discussion with Richmond Historical Society

Cole provided background on the ongoing discussions the Planning Commission has had on rezoning the Village, and the locations the commission is focusing on. Cole said that the commission is currently

seeking input to guide its work, especially the Historical Society's input as the commission determines how to rezone the southern portion of the village. Fran Thomas said based on discussions the Historical Society had, protecting the Round Church, the viewshed of the Round Church, and the areas surrounding the Round Church is vital to ensure that the church is in an appropriate setting. Thomas said that certain properties near the Round Church are not single-family homes, and expressed concern about changes to the facade of multifamily use properties—as evidenced with structures that have been recently altered along Main Street. Thomas said that the properties adjoining the Round Church are in character with the church, and would not want to see zoning changes that would affect the character of the area as a village setting around the Round Church. Ryan Ackley supported Thomas's comments, adding that he moved to Richmond for its setting, and that locals and visitors alike appreciate Richmond's setting. Cole brought up the Planning Commission's previous discussions on allowing mixed use properties, and commercial properties that are in line with the character of the area, and current questions on the character of the area in order to find ways to balance growth with the existing character of the area. Thomas said that the creation of a historic district could be one way to protect the character of the area, in terms of uses and structures. Clarke asked if there were businesses in the vicinity of the Round Church. Thomas said she was unsure, would have to look into it, but added that she is aware that the vicinity of the Round Church used to be the center of Richmond until the railroad was built and the center of town moved to where it is currently. Thomas said that since that shift, the character of the area has been residential, and that her neighbors are trying to rehabilitate their building to its original state while converting the single-family use to two units. Clark asked if the appearance of the structure was of a higher priority than the use. Thomas said from a Historical Society point-of-view, yes, and that in her opinion, she has reservations about buildings hosting multiple uses without the owner occupying the building, which changes the look of the area. Clarke mentioned the county-wide housing shortage. Thomas acknowledged the housing needs. Cole said that the Planning Commission has been trying to grapple with the needs of the town while balancing the character of the town by engaging with the public, and summarized Thomas's input about protecting aesthetics and preventing uncharacteristic uses. Thomas affirmed Cole's summary, adding that certain commercial uses could be allowed that are compatible with the area. Clarke asked if the Historical Society discussed the commercial area containing Stone Corral Brewery. Thomas said the society did not, adding that that commercial area is outside of the viewshed of the Round Church. Thomas said that she anticipates development in the developable portion of the Farr property, and that she would appreciate development there that is done tastefully. Fausel asked the Historical Society the extent of the potential historic district. Thomas identified areas south of the river to Cochran Road. Thomas asked if the Planning Commission has decided on how to rezone Main Street. Cole said the commission intends to make West Main Street similar to East Main Street, by allowing commercial activities on West Main Street while maintaining the residential character of the area. Thomas said that the appearance of the structures, the amount of traffic generated, and the location of parking would help with determining compatibility. Clarke overviewed the rationale for creating the Residential/Commercial District along East Main Street, and the ongoing discussions on possible upzoning along the primary corridors and the future of commercial use market. Clarke and Thomas further discussed walkability and the need for senior housing. Thomas thanked the commission for the invitation to the Historical Society to participate. Cathleen Gent said that more housing and affordable housing options could be developed in the village but in a manner that reflects existing settlement patterns per the Town Plan, and that she had concerns about a 9 units per acre allowance. Cole asked Gent about how the commission should address upzoning. Gent suggested investigating existing lot sizes. Clarke said Venkataraman provided a map with parcel sizes, and compared potential developability with the existing three units per acre allowance and a six units per acre allowance within the village. Clarke said that redevelopment with additional units if the village is upzoned seems unlikely in the near future. Gent recommended setting limits to promote the commission's vision of the village. Cole concurred, adding that he would like to see more density in the walkable areas of town and citing successful clustered development in town. Alison Anand said that having talked to a village resident recently who said that the village is currently congested that the commission should seek additional feedback from village residents, identify specific areas for upzoning, and widen the scope to relieve existing trafficked areas. Gent recommended that the commission talk to village residents early in the process. Cole said that he would like to take his time with the process and

implement policy with care. Clarke said that the commission is investigating opening up allowances area by area. Gent voiced concerns about the draft zoning map showing village mixed use along Thompson Road and Huntington Road. Cole asked why the districts did not align with the parcel boundaries. Fausel suggested it must have been human error. Gent said that Thompson Road did not have the capacity for additional development. Ackley asked if there was a specific target for housing development. Cole said there was not. Clarke said that the Housing Committee may develop targets in the near future. Ackley asked for a definition of a walkable distance. Cole said this was subjective, but in terms of transit, three-quarters of a mile is considered walkable. Ackley asked about redevelopment of Johnnie Brook Road. Fausel said the trail portion of Johnnie Brook Road is an ancient road. Clarke said that in the past, the Highways Department said that it had no intent of redeveloping the roadway, and that Johnnie Brook Road is currently a beautiful trail. John Rankin requested the commission to consider areas outside the village to site future housing. Fausel said that Jonesville had potential for increased development, and that the commission is considering areas south of the river because of the availability of water and sewer service. Cole said that balancing growth while maintaining the character of the area and retaining the existing settlement pattern is a tall task, and asked Venkataraman to provide all the zoning tools the commission can consider to move forward with this task. Clarke said that the Housing Committee will be investigating this further. Fausel said that the Atwood Farm was purchased by a developer and the commission should be having conversations about whether the town wants to allow further development outside the village center.

5. Other Business, and Correspondence

Cole requested that Venkataraman provide a list of zoning tools that municipalities use to increase density. Venkataraman said that it depends on the context and that he could model the southern portion for development for the commission to consider. Clarke said that the Housing Committee will be investigating this further as well. Cole asked how to coordinate the commission's work with the Housing Committee's work. Clarke suggested that additional people provide input. Fausel concurred that additional input is needed, especially from people in West Main Street. Cole suggested creating an outreach schedule. Anand concurred with Cole, and talked about the unpredictability of the current times under Covid. Clarke discussed methods of outreach. Clarke discussed the methods to determine the suitability of uses per area, and carving out zoning districts based on compatible uses. Cole suggested determining the need for the neighborhoods district, and teasing details regarding West Main Street. Cole also said he was unsure about allowing six units per acre in the village, and would like additional information on other zoning tools to create more density in a way that the town has already accepted. Fausel recommended including language for public outreach in the next meeting packet. Cole said he would try to put together language for public outreach for the committee to review.

6. Adjournment

Motion by Granda, seconded by Nickerson to adjourn the meeting. Voting: unanimous. Motion carried. The meeting adjourned at 9:06 pm.

Respectfully submitted by Ravi Venkataraman, Town Planner

Town Plan Goals and the Zoning Update 2019 – 2021

After the adoption in 2018 of the updated Richmond Town Plan, the Planning Commission turned its attention to updating the Zoning Regulations to bring this document into alignment with the Plan. Many of the goals identified in the current Richmond Zoning Regulations (RZR) and the new Town Plan are the same as they have always been: to maintain Richmond's rural character by supporting small-scale development, agricultural and forested lands; to preserve historic and iconic features of the town; to respect the floodplain of the Winooski River; to "grandfather" existing uses and structures, and to provide safety and secure property value for residents.

New features that have appeared in our social fabric over time have required periodic updates to the RZR. In 2003 a "Wireless Telecommunication Facilities" section was added. In 2015, we added a "Jolina Court Interim Zoning Regulation" to the RZR to deal with the possibility of finally remediating the contaminated Creamery parcel. After extensive negotiation, the developer and the Town were able to agree on a project, and in 2019 the Planning Commission and the Selectboard prepared the final version the "Jolina Court Zoning District" that now appears in the RZR.

New challenges will require new thinking in some areas. It is no longer sufficient for towns to solve only their own problem; town, region and state are all too interconnected. The housing crisis in Chittenden County requires us to think hard about how we can develop additional dwellings to house all current and would-be Vermonters. The recognition of the importance of large areas of contiguous forest land require that we develop ways of protecting "forest blocks." The economic threats to traditional dairy farming in Vermont require that we consider how best to encourage and preserve the open agricultural lands that we prize as a feature of rural character. The increasing importance of Richmond as an outdoor recreation hub will require consideration of our trail and path network. Climate change is forcing us with great urgency to consider how we can use our regulations to reduce the use of fossil fuels in the transportation and home heating sectors.

In addition, it is not clear what commerce will look like over the next 20 years. Even before COVID-19 brought new meaning to the phrase "work from home," commercial real estate was undergoing a radical transformation as retail moved online. Re-envisioning downtowns as service-oriented and gathering spaces rather than purveyors of merchandise; as areas where live/work opportunities and flexibility of building use are required; as spaces where car-oriented facilities yield to pedestrian- and public-transit-oriented facilities as we learn to drive less – this re-envisioning will take an awareness of what others have done and what is possible, massaged with local input and creativity.

Our task is to try to navigate between sometimes conflicting mandates. Between those who like things just the way they are, and those for whom things as they are just don't work at all. With this challenge in mind, here is a brief list of some specific goals we are pursuing:

- Keep Richmond's village atmosphere while welcoming change and growth
- Protect village neighborhoods
- Increase flexibility for village properties on the main streets by providing more opportunities for multifamily housing and commercial activity
- Increase on-farm commercial opportunities in the agricultural/residential district

- Increase housing density within walking distance of the downtown and in clustered developments outside the village that could eventually be served by public or group transportation
- Provide for the continuance of large contiguous tracts of forestland by clustering any housing near existing roadways
- Plan for renewable energy facilities
- Protect the historic appearance of the area around the Round Church
- Continue to prohibit development in the floodplain
- Support the development of Richmond as an outdoor recreation hub
- Consider whether / how to regulate short-term rentals (like Air B&B)
- Determine the exact features of buildings that constitute "character of the neighborhood" to make DRB review of projects more straightforward

We will be looking for your input as we consider these issues and others. We will try to be somewhat specific about areas and issues that will be covered in a Planning Commission meeting so you can budget your limited time for the meetings that interest you the most. You can also email your thoughts to Ravi, our town planner at rvenkataraman@richmondvt.gov.

R/C ZD – what we like about it— For 10-7-20 Planning Commission Meeting

Currently boundaries of R/CZD:

1. Most of north and south sides of E. Main St (minus 2 properties next to Greensea and the Harley Brown building, all in VC currently)—
2. Lower Bridge St, east and west sides, to the park
3. Farr Rd, south side plus the first 2 parcels up Thompson Rd from Farr Rd.

Total number of parcels: 48 – Lots containing zero lot lines either are PUDs and therefore recognized as one entity or must be recognized as a PUD if redevelopment occurs.

Total number of parcels containing single-family dwellings - 23

Total number of parcels containing commercial uses - 9

- Commercial uses include: Harringtons; Richmond Animal Hospital; Mike Lemire upholsterer; Tom Coggio upholsterer; Victorian Inn/office complex; (Bower B&B); (hair salon); VLT office; (Chris's Cuts and Curls): Tiny Tots on the Common daycare; Stone's Throw Pizza

Total number of parcels containing institutional uses: 4

- Institutional uses: Town Center; Richmond Free Library; Cemetery; Congregational Church; Richmond Firestation

List of lots with multifamily dwelling uses and lots with multiple residential units in R/C district:

Location	**Type**	**Acreage**	**Number of Units**
10 East Main (Greensea)	Mixed Use	0.14	2 units
24 East Main	Residential Only	0.26	6 units
35 East Main	Residential Only	0.14	3 units
81-97 East Main	Residential Only	2.7	9 units
94 East Main	Residential Only	0.35	4 units
99 East Main	Residential Only	0.25	2 units
131 East Main	Residential Only	0.73	2 units (1 SF dwelling, 1 ADU)
287 East Main	Residential Only	0.60	4 units
208 Bridge St	Residential Only	0.53	2 units
15 Railroad St	Residential only	0.29	4 units
150 Thompson Road	Residential only	0.5	2 units
65-105 Farr Road	Residential only	1.46	12 units (1 eight-unit building, 1 four-unit building)

Immediately adjacent to the R/C ZD are a restaurant (Papa McKees), an office building (Harley Brown); Jolina Ct multifamily apartment building; a small commercial center (Round Church Corner Complex); Waitsfield Telecom sub-station

Areas that makes sense to add to the Residential/Commercial District:

1. 2 parcels next to Greensea on south side of E Main St
2. 5 parcels next to MMCTV on south side of W Main St
3. 4 parcels on north side of W Main St Ski Express to Millet St
4. 4 parcels on Depot St
5. 4 parcels on south side of Railroad St
6. 3 parcels on west side of Jericho Rd beyond the 4-plex
7. 4 parcels on east side of Jericho Rd after the utility box up to the cliffs

Areas worth discussion:

1. W Main St entrance to Richmond sign to Millet St, north and south sides (currently HDR)
2. Jericho Rd both sides, cliffs to schools (currently HDR)
3. South of the river (currently A/R) – various parts have different issues
    - Farr farm parcel
    - Thompson Rd, Cochran Rd, Bridge St, Huntington Rd

Areas that might need to stay commercial or village commercial (do we need both of these? These areas might fit into village mixed or R/C if we added a few more commercial uses))

1.Goodwin-Baker (currently VC)
2. Richmond Hardware and Market (currently VC)
3. Round Church Corner Complex (currently C)

Current "allowed uses":

Single family dwelling or duplex
B&B
Home occupation, group home, child care home, accessory dwelling (per state statute allowed where a single-family dwelling is allowed)
Accessory structure or use (accessory to one of the uses listed above)

Other compatible uses that could be made " allowed uses" based on existing or former uses:

All these, except the last, are currently conditional uses, along with many others
These would require "Site Plan Approval" by the DRB

Personal services
Office, professional or medical
Cooperative workspace
Restaurant
Childcare center-based
Artist-craft studio
Retail business
Inn or guest house
Multifamily dwelling with up to 4 dwelling units
Mixed use building, with up to 4 commercial uses and/or 1-3 dwelling units

Changes that would then need to be made to conditional use section:

Remove: *artist/craft studio*
Daycare center
Multifamily dwelling
Extraction of earth resources
Inn or guest house
Office, professional or medical
Personal services
Restaurant
Retail business

Add: *pharmacy*
Health services
Fitness facility
Catering services

Current Density

Parcel Size	Number of Parcels
Under 0.5	26
.5-.83	13
.84-1	2
1+	7

Final count – 48 parcels, 2 partial parcels
Large parcels – Institutions, Harringtons, Sterling House, E. Main Condos, Farr Road condos, couple houses

At the current density of 3 dwelling units /A, with rounding rule:
< 0.5A = 1 U (or 2 U if a duplex or singlefamily w/accessory dwelling)
0.5A – 0.83A = 2 U
0.84A – 1.16A = 3 U
1.17A – 1.50A = 4 U *3A = 9 U*

Should we increase the density to 6U/A or ____U/A?
*at a density of 6 U/A, with rounding rule:
Up to 0.24A = 1 U
0.25A – 0.41A = 2 U
0.42A – 0.58A = 3 U
0.59A – 0.74A = 4 U
0.75A -- 0-.91A = 5 U
1.5A = 9 U
1.7 A = 10 U

Design standards/ form-based criteria:

Currently "character of the neighborhood" standards. Must be approved along with conditional use.

- Non-residential use shall not exceed 2500 sq ft GFA per floor with 2-story maximum
- Shall be residential in character with style, massing, lot placement and scale similar to those found in existing residential neighborhood.
- Fire escapes, storefront windows, signs, fire escapes or other features that compromise architectural integrity shall not be placed on the front

Standards to consider adding to the comparability section:

- Front-yard setbacks set at 15 feet or average of the adjoining parcels, whichever is less
- Build-to-zone occupancy minimum of 40 percent from the minimum setback requirement to 25 feet from ROW – meaning that for a lot with a 50-foot frontage, 20 feet must be occupied by a building, set between the minimum front-yard setback and 25 feet from the ROW (the diagram below assists with explaining the concept).
- All parking and detached accessory buildings must be placed behind the building
- Street-facing entrance is a requirement
- Specifics on roof pitch, building materials, fenestration patterns, and facade elements requires further research

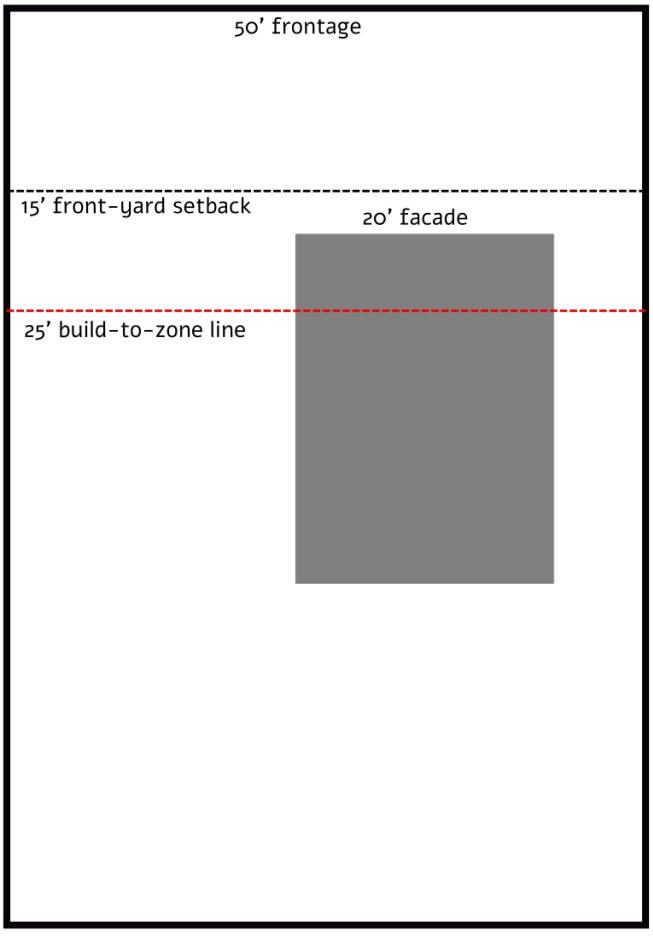


Figure 1: Figure: Lot with build-to-zone line. Lot lines in solid black. Primary building coverage in gray

TO: Richmond Planning Commission

FROM: Ravi Venkataraman

DATE: October 2, 2020

SUBJECT: “Zoning for Great Neighborhoods” Initiative

“Zoning for Great Neighborhoods” is an initiative by the Vermont Department of Housing and Community Development (DHCD) in partnership with the Congress for the New Urbanism (CNU). The overall goal of the initiative is to promote updating local zoning regulations to provide housing choices for more Vermonters. This includes advocating the development a variety of housing types in walkable communities and ways to adapt existing housing stock to fit the needs of the community.

Enclosed in your packet is “Enabling Better Places: A Zoning Guide for Vermont Neighborhoods”. This booklet lists a number of ways to implement the “Zoning for Great Neighborhoods” initiative. ways include:

- Modifying dimensional standards to reflect the existing built patterns while also preventing undue restrictions on a variety of housing options
- Reforming parking standards, because most zoning regulations require much more parking that what is necessary for the use and parking requirements may prevent the highest and best use of the property (such as housing)
- Revising the list of allowable uses, as the review process for certain uses in certain districts may be baseless because the impact of such uses are minimal
- Establishing street standards to promote multiple modes of users and to enable access
- Encourage the development of accessory dwelling units
- Eliminate unnecessary barriers by streamlining the development review process

Additional details on particular methods can be found in the booklet.

Based on the current conversations, I recommend that the Planning Commission consider the following methods listed in the booklet:

- Eliminating density caps on lots in the village – Most of the lots are under an acre, and these smaller lots are already constrained by parking requirements, setbacks, height limits, and lot coverage limits. These constraints already sets a limit to how many units the lot could host, and adding a density limit would be unnecessary.
- Aligning the dimensional standards with the existing or desired pattern in the Village – This would help to create a uniform streetscape for any new developments
- Removing requirements that forbid a second building on a lot in the Village – Similar to eliminating density caps, since smaller lots are already constrained by size and other requirements, smaller lots in the village have limited development potential, and the ability to add multiple primary structures and uses would cluster development in the village.
- Reexamine review processes for nonconforming buildings – Currently, the zoning regulations allow minimal expansion of nonconforming structures that were built prior to 1969 via the Conditional Use review process. Review processes may prevent landowners from adapting existing nonconforming structures. For particular projects, the review process may even be baseless and resource-intensive, since the development review process would take at least three months for Conditional Use and/or Site Plan Review versus about a month for administrative review.

- Establishing a “build-to-zone” or character-based frontage requirements for an attractive streetscape in the villages
- Revise parking standards, eliminate parking minimums, and require parking spaces to be placed behind buildings
- Revise PUD standards to allow for a variety of housing options
- Where practical, revise site plan review standards to allow for administrative review for certain projects

Report on Hinesburg Town Plan Revision

For 10/28/2020 Planning Commission Public Hearing
prepared 9/25/2020 by Alex Weinhagen, Director of Planning & Zoning

The Hinesburg Planning Commission will hold a public hearing on Wednesday, October 28, 2020, at 7pm to receive public comment on proposed changes to the Town Plan. Due to covid-19 and the closure of the Town Office, this public hearing will be held remotely via Zoom – meeting id 850 5578 1467; meeting password 123456; meeting connection link https://us02web.zoom.us/j/85055781467; dial-in phone number 1-646-558-8656.

Revisions are proposed to the energy chapter of the plan (chapter eight) – i.e., complete re-write of this chapter, and a series of nine new supporting maps. These revisions affect all of Hinesburg. Hinesburg adopted its first Town Plan in 1971. It was last revised on September 25, 2017. This report was prepared to explain the revision and to satisfy the requirement of VSA Title 24, Chapter 117, Section 4384c with regard to proposals to amend a town plan. This section requires that a report be prepared to "address the extent to which the plan, as amended, is consistent with the goals established in section 4302." There are four general goals and 14 specific goals outlined in section 4302 that are discussed below.

This section also requires that the report address changes that would alter the designation of any land area. No specific alterations to land area designations are outlined in this plan revision; however, the new energy chapter does provide additional clarification on unsuitable areas and preferred sites for energy generation facilities. A series of new maps are also proposed to help illustrate this.

Copies of the proposed revision, new maps, this report, as well as the current Town Plan are available online - https://www.dropbox.com/sh/aisbaue5k37lk5s/AAAFjAv07TvcwS9UmEpDHOUya?dl=0. Additional information can be found on the Town web site (www.hinesburg.org), and by contacting Alex Weinhagen (Director of Planning & Zoning) at aweinhagen@hinesburg.org or 482-4209.

Consistency Section 4302 Goals:
The proposed plan revision is consistent with the goals outlined in the State statute as outlined below.

General Goals of VSA 24, 117, Section 4302

1) To establish a coordinated, comprehensive planning process and policy framework to guide decisions by municipalities, regional planning commissions, and state agencies.

Hinesburg has a well-established planning process and policy framework that began in the early 1970's with the first Plan, Zoning Regulations, and Subdivision Regulations. Today, Hinesburg's planning toolbox also includes a formally adopted Capital Budget & Plan, public safety impact fees, an Official Map of future community facilities and infrastructure, and a municipal planning & zoning department with dedicated full-time staffing. Our planning process continues with

the help of the Planning Commission, Development Review Board, Select board, other municipal boards/commissions, Town staff, and a host of committed community members.

Prior to vetting with the Planning Commission, the proposed revisions to the energy chapter were developed by our Town Energy Committee with assistance from staff from the Chittenden County Regional Planning Commission.

2) To encourage citizen participation at all levels of the planning process, and to assure that decisions shall be made at the most local level possible commensurate with their impact.

This plan update is the result of over a year of work by citizen volunteers on our Energy Committee. Additional citizen participation will be encouraged via the Planning Commission and Select Board review and public hearing process.

3) To consider the use of resources and the consequences of growth and development for the region and the state, as well as the community in which it takes place.

The proposed plan revision gives ample attention to the use of energy resources and the consequences of both the status quo and of proposed changes to energy use and energy generation. With the help of regional planning commission staff, the energy plan is specific to Hinesburg while being set in the context of county-wide energy planning and statewide goals. The energy plan represents Hinesburg's best attempt to outline how our community will work toward attainment of the goals in the statewide comprehensive energy plan.

4) To encourage and assist municipalities to work creatively together to develop and implement plans.

See response above.

Specific Goals of VSA 24, 117, Section 4302

1) To plan development so as to maintain the historic settlement pattern of compact village and urban centers separated by rural countryside.

This goal is not directly related to the proposed energy chapter revisions. With that said, energy usage is related to land use patterns. See below for how the overall plan is consistent with this goal.

The overall plan retains Hinesburg's long-time commitment to this goal. Overall, the plan seeks to achieve this goal through orderly growth of Hinesburg's existing village area where higher residential density and a wide variety of commercial, retail, and municipal uses can co-exist. Outside of the village growth area, the plan prioritizes lower density growth and natural resource conservation as well as innovative development techniques to preserve rural character. See Chapter 3 (Land Use) for details and specific recommendations on this front.

2) To provide a strong and diverse economy that provides satisfying and rewarding job opportunities and that maintains high environmental standards, and to expand economic opportunities in areas with high unemployment or low per capita income.

This goal is not directly related to the proposed energy chapter revisions. See below for how the overall plan is consistent with this goal.

The overall plan addresses this directly in the Economic Development chapter. Overall, the plan recognizes this as an important goal, and seeks to address it by allowing and encouraging continued economic development in the village growth area (redevelopment, in-fill, and new development) as well as appropriate industrial land use areas. The plan seeks to concentrate much economic development in the village growth area so as to provide services and employment close to higher density residential areas and public infrastructure like municipal water and sewer. With that said, this plan also advocates for the continuation of Hinesburg's tradition of small-scale home occupations and businesses that fit within the community. Home-based businesses often allow greater entrepreneurial opportunities with less upfront capital costs. Furthermore, these businesses enrich community life by increasing local activities, providing local services, saving energy on commuting, and reducing impact on local and regional transportation infrastructure. Hinesburg, and the greater Chittenden County area have low unemployment and generally high per capita income, and this plan recommends actions to maintain this strong and diverse local and regional economy. See Chapter 4 for details on economic development.

3) To broaden access to educational and vocational training opportunities sufficient to ensure the full realization of the abilities of all Vermonters.

This goal is not directly related to the proposed energy chapter revisions. See below for how the overall plan is consistent with this goal.

The overall plan addresses this goal to the extent possible. The plan recognizes the importance of educational opportunities, including our local elementary school and union high school and regional vocational/technical centers. Hinesburg's commitment to education is demonstrated by the community's strong support of the Champlain Valley Union High School, which the Town hosts. This commitment is further evidenced by the plan's language to address child care issues outside of the formal educational setting (see child care section in Chapter 6). At the same time, the plan reports on census data that shows the number of young children is declining here, just as it is across the rest of the state. These trends make efficiency considerations critical for any attempt to "broaden" access to educational opportunities.

4) To provide for safe, convenient, economic and energy efficient transportation systems that respect the integrity of the natural environment, including public transit options and paths for pedestrians and bicyclers.

The proposed revision includes new action items and discussion about energy efficient transportation. It details the changes needed to accomplish energy reduction and a transition from fossil fuels to electric in the transportation sector. Hinesburg takes its transportation systems very seriously, especially since it is the 2nd largest budget item (after schools) for property taxes. The plan includes a comprehensive transportation section (Chapter 7) that addresses the needs of conventional vehicular traffic as well as pedestrian, bicycle, and public transportation options. It tackles the difficulties related to the State highway (Route 116), which runs through the center of town, and constitutes Hinesburg's "Main Street" within the village core. It prioritizes the creation and maintenance of a truly "walkable community",

especially within the greater village area. It recognizes that the management of rural roads, especially dirt roads, requires special consideration in order to preserve the rural character and related recreational uses. The plan addresses this goal by detailing specific studies and road improvements, by recommending additional pedestrian and bicycle project areas, and by continuing to support public transportation – which came to fruition with new CCTA/ACTR bus service in 2012.

5) To identify, protect and preserve important natural and historic features of the Vermont landscape.

The proposed plan revision clarifies which natural features should be protected and preserved as energy generation facilities are developed. Just like for any other sort of development, the plan very clearly identifies and requires protection of important ecological and cultural resources. Hinesburg residents care deeply about the natural and historic features that define both the rural character and the industrial history of the community. A conservation ethic for significant natural areas, open space, and water resources permeates the entire plan – particularly in Chapter 5. The plan also includes two sections detailing the town's historic resources (Chapter 9 and Appendix A).

6) To maintain and improve the quality of air, water, wildlife and land resources.

See above. As stated above, Hinesburg residents continually rate natural resources as important elements that need good stewardship, conservation, and preservation where appropriate. The planning process recognizes this shared community value, and the plan specifically incorporates it via a comprehensive natural resource section (Chapter 5). Water quality in particular is an issue highlighted again and again in the plan, with goals and actions items that anticipate an "all-in" approach to cleaning up Lake Champlain – e.g., municipal demonstration projects, municipal road stormwater control improvements, development regulations, public outreach, etc.

7) To encourage the efficient use of energy and the development of renewable energy resources.

It is this goal that the plan revision speaks most directly to. Energy efficiency and the development of renewable energy resources are thoroughly addressed in chapter 8 of the plan. This chapter borrows heavily from statewide comprehensive energy plan. Hinesburg has been very supportive of renewable energy development. The Town itself has a sizable ground-mounted solar installation on its property adjacent to the wastewater treatment facility. In 2020, the Town put out an RFP to solar companies in order to move new solar projects forward on municipal property. As a result, the Town is now actively working on solar projects on an old landfill site, on the roof of the Town highway facility, and other locations. With that said, this plan also provides clear guidance on factors to be considered in the siting of such facilities.

8) To maintain and enhance recreational opportunities for Vermont residents and visitors.

This goal is not directly related to the proposed energy chapter revisions. See below for how the overall plan is consistent with this goal.

Recreational activities abound in Hinesburg thanks to the varied landscape, rural land use, and multi-use back roads and trails. The plan recognizes the importance of rural recreation (hiking, hunting, snowmobiling, cross-country skiing, bicycling, etc.), and the role that public and private lands play in providing these opportunities. The Town is also committed to providing a wide variety of organized recreational programs, primarily through the Recreation Department and school programs. The plan recognizes the importance of recreation and advocates for continued and enhanced opportunities (see Chapter 6). The plan advocates a proactive stance on providing recreational opportunities within the Town's growth center. It also advocates for greater planning in the rural areas to develop networks of trails with connections to important residential areas and services. The trail vision map embodies this continuing effort.

9) To encourage and strengthen agricultural and forest industries.

This goal is not directly related to the proposed energy chapter revisions. See below for how the overall plan is consistent with this goal.

The plan includes a number of strategies to retain and bolster agricultural and forest uses. First and foremost, it identifies the bulk of town as a lower overall development density area where agricultural and forest uses receive priority (see Chapter 3). Secondly, it provides mechanisms for home-based businesses and rural-based enterprises (e.g., farm café, integrated agricultural uses, etc.), which allows producers greater flexibility in the manufacture and marketing of value-added agricultural and forest products. Lastly, it addresses the importance of agricultural and forest lands, along with strategies to ensure continued access to viable agricultural and forest parcels (see Chapter 5).

10) To provide for the wise and efficient use of Vermont's natural resources and to facilitate the appropriate extraction of earth resources and the proper restoration and preservation of aesthetic qualities of the area.

This goal is not directly related to the proposed energy chapter revisions. See below for how the overall plan is consistent with this goal.

Chapter 5 of the plan provides the background information and specific recommendations for Hinesburg's abundant natural resources. Earth or geological resources, and their importance to the community are identified. The planning process (i.e., conditional use review) makes adequate provisions for proper restoration, once extraction of these resources begins or ends.

11) To ensure the availability of safe and affordable housing for all Vermonters.

This goal is not directly related to the proposed energy chapter revisions. See below for how the overall plan is consistent with this goal.

Hinesburg's plan specifically addresses and encourages the creation of affordable housing, especially within the village growth area, where more municipal infrastructure is available. The plan includes definitions of both affordable and "reasonably-priced" housing. Both the plan and the Town's existing regulations provide for density bonuses as an enticement to build safe and affordable housing for a variety of income levels. In fact, the plan goes on to recommend that the Town expand its municipal services (e.g., wastewater treatment capacity, sidewalks, etc.) so as to further the provision of needed housing. See Chapter 2.

12) To plan for, finance and provide an efficient system of public facilities and services to meet future needs.

This goal is not directly related to the proposed energy chapter revisions. With that said, the energy chapter does encourage community solar projects that could meet the needs of residents who seek renewable energy opportunities (action item 8.2.9). The energy plan also encourages the creation of micro grid systems to enhance reliability and self-sufficiency of electrical service (action item 8.2.4). See below for how the overall plan is consistent with this goal.

The plan and the community recognize the importance of maintaining and fully utilizing our existing public facilities. As noted above, it recommends the expansion of certain critical pieces of infrastructure (e.g., public safety facilities, recreation fields & facilities, road improvements, etc.), and advocates for continued use of the capital budget to adequately plan for their creation and financing. Furthermore, the plan recommends the Town continue to utilize impact fees, or other comparable mechanisms, to help fund improvements that will undoubtedly be needed as the community grows. Fire and police protection, emergency medical services, schools, water supply and sewage and solid waste disposal are all addressed. Our regulatory process is designed to consider impacts to these services, and try to minimize these impacts wherever possible. See Chapter 6 (Community Facilities and Services) for details. Hinesburg is currently in need of infrastructure improvements to meet the vision outlined in the plan – e.g., water supply, wastewater treatment, new highway garage. The plan addresses these needs and recommends more work on development phasing to ensure growth and development doesn't outstrip the community's resources.

13) To ensure the availability of safe and affordable child care and to integrate child care issues into the planning process…

This goal is not directly related to the proposed energy chapter revisions. See below for how the overall plan is consistent with this goal.

This plan provides baseline information on available child care and demand. It goes on to make recommendations (see Chapter 6) to improve child care by addressing financing difficulties, ensuring adequate infrastructure, and assisting with business assistance and work force development. The plan strives to meet both the spirit and letter of this State standard/goal, while recognizing that there is only so much the community can do on this front.

14) To encourage flood resilient communities.

This goal is not directly related to the proposed energy chapter revisions. See below for how the overall plan is consistent with this goal.

This is addressed in Chapter 5, with flood hazard areas (including fluvial erosion areas) indicated on Map 7. New development in flood hazard areas and riparian areas is discouraged. The Zoning Regulations allow development in such areas only in keeping with flood proofing standards, and only after a demonstration of no undue adverse impacts on surrounding properties, upstream/downstream properties and infrastructure, as well as water quality. The

Town has actively worked to conserve important floodplain areas (e.g., LaPlatte Headwaters Town Forest). Building setbacks from streams have been required for decades in Hinesburg, but the plan further recommends the creation of vegetated riparian buffers to improve water quality and help minimize flood impacts.

Land Area Designation Considerations

1) The probable impact on the surrounding area, including the effect of any resulting increase in traffic, and the probable impact on the overall pattern of land use.

No specific alterations to land area designations are outlined in this plan revision; however, the new energy chapter does provide additional clarification on unsuitable areas and preferred sites for energy generation facilities. A series of new maps are also proposed to help illustrate this.

New energy generation facilities will have impacts – principally on aesthetics and the need for improved utility infrastructure (i.e., line and substation capacity upgrades). Energy generation facilities will not be invisible; however, the relatively robust screening requirements contained in section 5.6.6 of the Zoning Regulations (utilized by the Public Utility Commission during the certificate of public good review process) should help mitigate aesthetic impacts. There should be no appreciable increase in traffic due to new energy generation facilities. Perhaps even a reduction in traffic as fossil fuel deliveries diminish over time. The overall land use pattern will be maintained, given that the plan treats energy generation facilities similarly to other types of development (e.g., residential, commercial, etc.). With that said, there will be substantially more solar arrays in Hinesburg's rural areas. This change will require some getting used to, but it is necessary and reasonable.

2) The long-term cost or benefit to the municipality…

The energy plan's heavy focus on energy efficiency and weatherization will result in long-term cost savings to residents, businesses, and the municipality.

3) The amount of vacant land which is already subject to the proposed new designation, and actually available for that purpose, and the need for additional land for that purpose.

Again, no specific land designation changes are proposed. Certain preferred sites for energy generation are indicated, but beyond that the plan focuses on aggregate need for new renewable energy generation, rather than specific land areas. As noted in Figure 1 and Figure 2, the amount of land needed to meet the renewable energy goals is a tiny fraction of the available land area in Hinesburg.

4) The suitability of the area in question for the proposed purpose.

Chapter 8 provides clarity on constraints that limit where new energy generation facilities can be located. The suitability of the land for such facilities is addressed in the text and the town-wide mapping. With that said, site-specific analysis will always be an important element when such projects are reviewed.

Energy Chapter 8

Introduction

Energy planning has come to the forefront in Vermont in the 21st century. In addition to energy generation, distribution, and use, energy planning and policy are tied to economic development, land use, transportation, community, and Vermont's landscape. Sound energy policy not only recognizes the challenges posed by climate change, but also seeks to implement mitigation measures and chart a course to adapt to new realities. In 2016 Vermont adopted a Comprehensive Energy Plan (CEP) with specific goals for energy consumption, renewable energy and greenhouse gas emission reductions and, with Act 174, established an "enhanced energy planning process" aimed at helping regions and towns meet their share of the CEP goals. This Energy Chapter, as well as portions of Chapter 3 (Land Use; smart growth vision) and Chapter 7 (Transportation), have been written to be compliant Vermont's new municipal energy planning standards. This will benefit our ongoing energy planning efforts and provide Hinesburg with a greater voice in any energy siting proceedings before the Vermont Public Utilities Commission. Specifically, compliance with the State's enhanced energy planning requirements ensures that Town Plan recommendations will be given "substantial deference" by the Public Utilities Commission in their review of energy projects.

Underlying the new municpal planning standards is an acceptance of the goal of transforming the energy profile of Hinesburg's residents, businesses and Town government in ways consistent with our State's Comprehensive Energy Plan, which calls for greater energy efficiency, reduced reliance on fossil fuels and increased local generation of renewable energy, all leading to a major reduction in greenhouse gas emissions by 2050. This Chapter presents a quantification of one specific pathway to achieve this goal, recognizing that there are many possible pathways and that long-term success will require support from federal and state policies and continued gains in technology. The quantified targets were developed by the Chittenden County Regional Planning Commission using available regional and local data and a state-wide analysis performed by the Vermont Energy Investment Corp. (VEIC) using the Long-Range Energy Alternatives Planning System (LEAP), a widely-used software tool for energy and climate policy analysis. Acceptance of these goals will satisfy the State's enhanced energy planning requirements and will enable Hinesburg to receive "substantial deference" in energy siting hearings from the Public Utilities Commission. In the future Hinesburg will be free to develop new pathways with a different mix of quantitative objectives and will maintain "substantial deference" as long as the overall State goals are met.

Goal 8.1 Adopt the State enhanced energy planning goals for Hinesburg and develop strategies and shorter-term objectives to achieve them

Actions:

8.1.1 Identify long-term strategies and shorter-term objectives for the Town to meet efficiency and renewable energy goals for:

- Electrical Energy Use and Efficiency (see Table 2)
- Commercial and Thermal Energy Use, Weatherization, and Conversion to Renewable Technologies (see Table 5)
- Residential Thermal Energy Use, Weatherization, and Conversion to Renewable Technologies (see Table 6)
- Transportation Energy Use and Conversion to Electric Vehicles (See Table 8)
- Reducing per capita energy use by 2050 (see Tables 9 and 10)

8.1.2 Develop programs with specific measurable objectives to make progress toward each efficiency and renewable energy goal.

8.1.3 Use life cycle cost when evaluating energy-related Town capital expenditures, including vehicle acquisition.

8.1.4 Use benchmarking of municipal, institutional and commercial buildings to educate the owners of their buildings' energy performance relative to other buildings or past performance.

8.1.5 Work with the Energy Action Network, State and County agencies and other organizations to improve local data available from the Community Energy Dashboard, the Architecture 2030 Challenge for Planning and other sources and tools to better monitor and educate the community on Town progress.

Goal 8.2 Support the development of alternative renewable energy sources and business opportunities and site an additional 13,517 to 23,594 MWh of annual generation in Hinesburg to contribute to Vermont's goal of obtaining 90% of energy from renewable sources by 2050.

Actions:

8.2.1 Identify strategies to increase renewable energy generation within Hinesburg and meet electricity generation targets consistent with Town land use policies and values (see Table 12)

8.2.2 Encourage the use of renewable energy systems for onsite electricity generation and thermal energy. Analyze and realize the potential for renewable energy generation (particularly solar and wind) on municipal property for municipal and/or community use.

8.2.3 Encourage farmers to use renewable energy in the production of their goods.

8.2.4 Promote smart grid and micro grid systems.

8.2.5 Consistent with the Public Utilities Commission process, designate additional preferred sites for renewable energy generation on a case-by-case basis via the joint letter process with the CCRPC.

8.2.6 Periodically update Energy Maps including Existing Renewable and Preferred Sites, Known Constraints, Area Without Constraints, Potential Solar Resource Areas, Potential Wind Resource Areas, and Hydro-Electric Resource Locations to facilitate development of renewable energy by land owners and energy developers consistent with constraints and Town preferences.

8.2.7 Encourage owners to install rooftop solar and trackers on existing buildings and land.

8.2.8 Work with electric utilities to modernize the grid to facilitate development of renewable energy in Hinesburg.

8.2.9 Encourage energy storage facilities as a component of new renewable energy developments when appropriate.

8.2.10 Analyze the potential for community solar projects based on current State and Federal policy and financing options.

Goal 8.3 Preserve any existing or potential renewable energy resource.

Actions:

8.3.1 Strengthen zoning and subdivision regulations to require that all buildings be designed to maximize passive and active solar gain. Consider changing existing language from advisory (e.g., "should") to required (e.g., "shall") in section 5.26.2(5) of the Zoning Regulations and sections 5.1.12 and 6.12.4(6) of the Subdivision Regulations. Explore amending zoning and subdivision regulations to include design standards to preserve the southern exposure of buildings for passive and active solar gain. Balance this with other siting and design factors, especially in the Village Growth Area where compact development is more common and street trees are necessary.

8.3.2 Encourage plantings that maximize solar heating in the winter and provide shade in the summer.

8.3.3 Encourage ongoing sustainable forest management to maintain a local source of fuel wood (biomass).

8.3.4 Preserve open areas suitable for solar energy generation (e.g., southern aspect) that are situated close to the Village Growth Area. Such areas could be useful in the future for providing renewable energy to concentrated portions of Hinesburg Village.

8.3.5 Ensure that larger buildings with expansive roofs are adequately designed such that their roofs can support future solar installations. Consider a town-wide requirement (ordinance or zoning regulation) for solar ready roofs on all new construction.

Goal 8.4 Improve energy efficiency, reduce building energy demand, and work towards 100% of businesses and homes being weatherized by 2050.

Actions:

Top Priority

8.4.1 Maximize the energy efficiency in Town-owned buildings and vehicles.

8.4.2 Encourage homeowners and businesses to seek thermal efficiency upgrades and then invest in efficient renewable energy technologies.

8.4.3 Promote the use of energy efficient lighting, appliances, automatic setback thermostats and motion detecting light controls to save energy.

8.4.4 Promote the energy efficiency and weatherization services of Efficiency Vermont, Vermont Gas Systems, NeighborWorks, and the energy transformation programs of Vermont Electric Cooperative and Green Mountain Power ("Tier III") and other efficiency programs. Keep track of how many homes are weatherized, with a goal of 60 homes per year in order to reach the 100% goal by 2050.

8.4.5 Promote cost-effective energy efficiency in future residential and commercial buildings by adopting Vermont's stretch code for all development and major renovations in Hinesburg.

8.4.6 Work with Efficiency Vermont and other partners to develop a manual to educate homeowners on how to choose and complete the next step towards a net zero home. Highlight local success stories, including examples of net zero homes – both via new construction and via renovation of existing housing stock.

8.4.7 Consider future adoption of net zero ready requirements for new buildings to meet the State's comprehensive energy plan goal of all new buildings being net zero by 2030.

Goal 8.5 Reduce transportation related energy demand and switch transportation fuels to renewable electricity and renewable biofuel.

Actions:

8.5.1 Promote cost-effective energy efficiency in future transportation planning.

8.5.2 Consider regulation or ordinance changes to require that new developments incorporate electric charging stations, and if possible, power these by solar photovoltaic systems.

8.5.3 Encourage the Town and the Champlain Valley School District to install electric charging stations, and to seek higher fuel efficiency and vehicles with alternative fuel types (e.g., biofuels, electric) when purchasing or leasing new vehicles.

8.5.4 Consider bicycle paths and lanes, pedestrian walkways, and mass transportation access in the review of all development proposals in the Village Growth Area. Support and promote bicycle and pedestrian use along existing roadways, including on-road bicycle lanes, and encourage these forms of transportation to neighboring town infrastructure.

8.5.5 Support efforts to increase public transit ridership (e.g., GMT, ACTR).

8.5.6 Promote more awareness of the State's GoVermont connecting commuters carpool/rideshare program. Go Vermont is a free resource for travelers who want to reduce the cost and environmental impact of driving. Encourage residents to register at www.ConnectingCommuters.org.

8.5.7 Investigate why more school children don't ride the school bus, and explore ways to increase ridership.

Goal 8.7 Encourage a balanced approach between the placement of utility services and the character of the rural and village areas.

Actions:

8.7.1 Continue to require new utility lines serving end users be underground, barring site limitations that make underground lines impossible. Seek to relocate existing above ground lines underground within the village core, especially along the "main street" portion of Route 116 from Mechanicsville Road to Friendship Lane.

8.7.2 Encourage cooperation between the town and Green Mountain Power to find a suitable site for a substation or other improvements that would increase power supply and reliability so that adequate electric power is available for both new development and three phase service for the Industrial 1 zone in South Hinesburg.

Goal 8.8 Continue to define the role of the Hinesburg Energy Committee.

Actions:

8.8.1 The Energy Committee should take the lead in the execution of Town Plan energy goals and recommendations.

8.8.2 Help property owners understand State energy efficiency building codes (Residential Building Energy Standards, RBES; Commercial Building Energy Standards, CBES) for new development and renovations – e.g., outreach when building permits are issued.

8.8.3 Identify utility, federal and state incentives to support energy conservation efforts and efficiency improvements. Educate the public about potential incentives for energy conservation and efficiency improvements (e.g., workshops, published information, etc.).

8.8.4 Participate in the public review processes of new utility facilities and municipal facilities and major residential and commercial developments. Review these projects for conformance with the Town Plan. Create an objective set of criteria to enable consistency in such reviews. Seek to preserve the Town's rural character while recognizing the important function these projects serve.

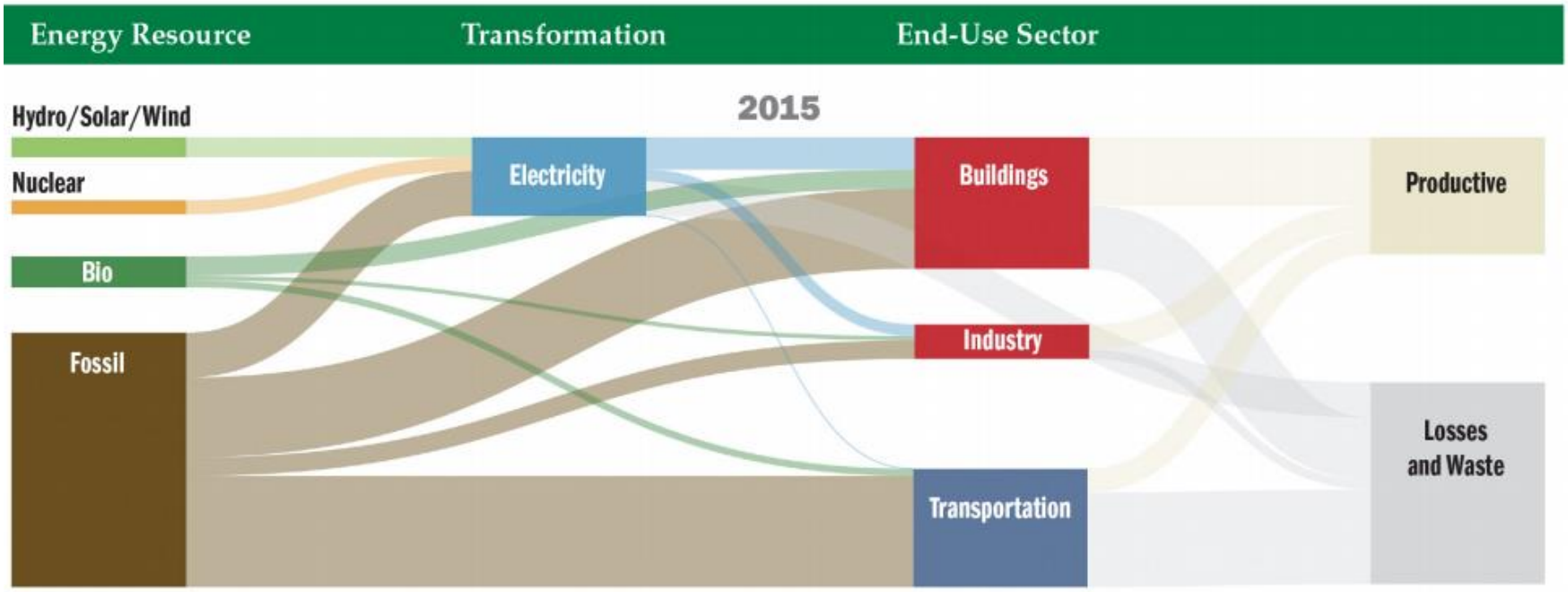
Enhanced Energy Planning

The foundation of enhanced energy planning is the goals established in the 2016 Vermont Comprehensive Energy Plan (CEP) - https://publicservice.vermont.gov/publications-resources/publications/energy_plan:

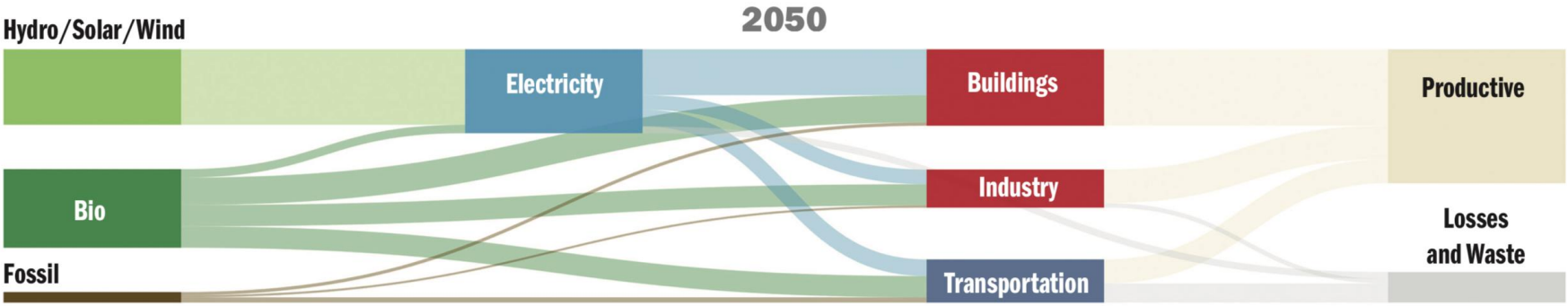
- Reduce total energy consumption per capita by 15% by 2025, and by more than one third by 2050.
- Meet 25% of remaining energy needs from renewable source by 2025, 40% by 2035, and 90%d by 2050.
- Three end-use sector goals by 2025: 10% renewable transportation, 30% renewable buildings, and 67 % renewable electric power.
- Reduce greenhouse gas emissions from energy use by 40% below 1990 levels by 2030 and 80% to 95% by 2050.
- All new buildings to be net zero by 2030.

The effects of achieving these goals on the energy system in Vermont is illustrated by following two exhibits from the 2016 CEP for the years 2015 and 2050. These show graphically how a mix of primary energy resources, including fossil fuels and renewables, provide heat, light and power to end-users, as well as how much energy is transformed into electricity in the process and how much energy is ultimately productive or lost and wasted. From 2015 to 2050 the heavy reliance on fossil fuels (plus Vermont Yankee nuclear power) is replaced by renewable hydro/solar/wind power and bio-fuels. More energy resources are transformed into electricity and end-use of fossil fuels in buildings, industry and transportation is reduced to very low levels. Total energy use is also reduced by improved thermal efficiency in buildings and industry and greater efficiency of building equipment and lighting, industrial processes and vehicles. By 2050 light-duty vehicles are primarily EV's and heavy-duty vehicles and trucks are heavily reliant on bio-fuels.

Vermont Energy Flows (2015)



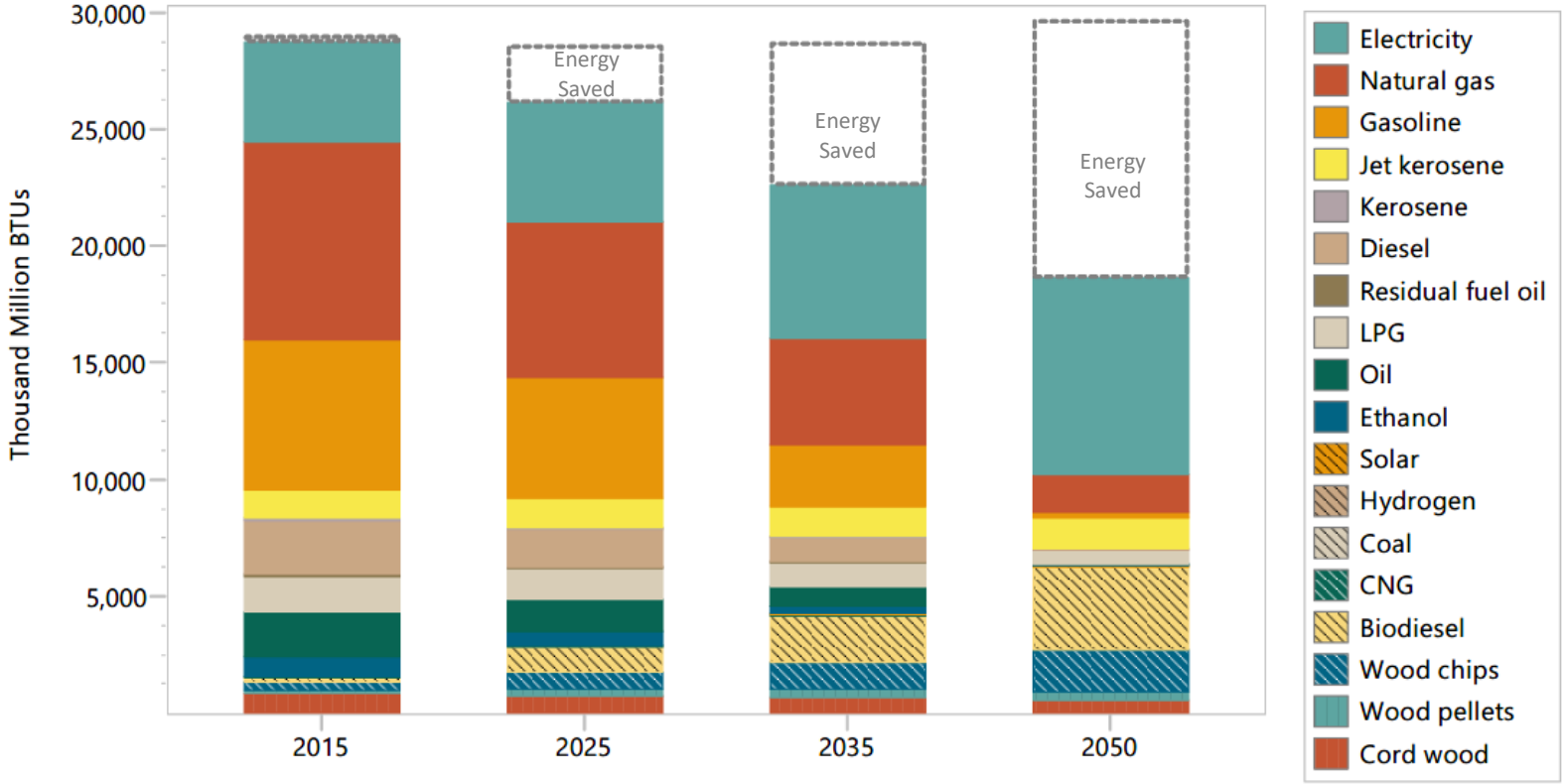
Source: Vermont Comprehensive Energy Plan 2016



How the transformation described above would affect the profile of energy use in Chittenden County is illustrated in the graphic below prepared by the CCRPC. This shows the LEAP model's estimated change in energy use by fuel type for Chittenden County as well as energy saved across all sectors between

2015 and 2050. While the current mix of fuels for Hinesburg differs from that of the County as a whole, particularly in County's heavier reliance on natural gas, the overall pattern of increased Energy Saved and Electricity end use and the substitution of renewables for fossil fuels for Hinesburg would be similar.

Chittenden County Energy Use by Fuel Source & Energy Saved Compared to "Business as Usual," 2015-2050



Act 174 aims to facilitate this energy transformation through an enhanced energy planning process integrated with land use planning that establishes a new set of municipal and regional energy planning standards and goals, which if met would be consistent with the state-wide CEP goals. Enhanced energy planning is voluntary, but if the Hinesburg Town Plan is certified by the Chittenden County Regional Planning Commission as being in compliance our preferences on issues such as land use planning and siting of energy projects will receive "substantial deference" rather than "due consideration" in actions before the Vermont Public Utilities Commission. "Substantial deference" as defined in Act 174 means that "a land conservation measure or specific policy shall be applied in accordance with its terms unless there is a clear and convincing demonstration that other factors affecting the general good of the State outweigh the application of the measure or policy." This gives considerably more weight to Hinesburg's preferences in PUC proceedings than is provided by simple "due consideration."

In order to be certified as in compliance with enhanced energy standards, this Town Plan must first be approved by the Chittenden County Regional Planning Commission (CCRPC) as consistent with the standards laid out in 24 VSA §4352. These standards include consistency with the state climate and energy goals and compatibility with the approved Regional Plan. The CCRPC has provided Hinesburg with planning standards and quantitative pathways for future action, that if adopted would meet these standards, enabling Hinesburg to receive the formal "determination of energy compliance" that provides "substantial deference." This Energy Chapter adopts the CCRPC suggested pathway but recognizes that there are many ways to meet energy and climate goals land that Hinesburg may adopt other pathways in the future as our plans and circumstances progress.

The standards and data provided by the CCRPC are the most current and detailed available. Unfortunately, data on energy consumption and end-use energy equipment at the town level is currently limited. For example, data on electrical consumption for Hinesburg is available but data on home or vehicle fuel consumption is not. Where actual town data is not available, allocations of State or regional data or estimates based on surveys are used. Efforts are being made to improve the data available for regional and town planning and as better information becomes available, Hinesburg may revise its energy planning accordingly.

State statute (24 V.S.A. section 4382) requires that municipal plans include an energy plan including, "an analysis of energy resources, needs, scarcities, costs and problems within the municipality, a statement of policy on the conservation of energy…" This chapter addresses these issues and includes policy on the development of renewable energy, which has seen tremendous growth in Vermont. Related land use policies to help conserve energy (e.g., smart growth) are discussed more fully in Chapter 3. Related transportation policies are discussed in Chapter 7.

Enhanced Energy Planning Targets

The targets provided in the tables below are provided by the CCRPC and, taken as a whole, satisfy the requirements necessary for Hinesburg to receive a "determination of energy compliance" and receive "substantial deference" in hearings before the PUC.

They are developed with data from the Long-Range Energy Alternatives Planning (LEAP) model[1] to estimate one possible scenario to reach these goals. This scenario includes the following goals for Hinesburg for 2050 with interim targets for 2025 and 2035 as shown in the individual tables:

- Weatherization and Efficiency Upgrades: 28% of commercial and industrial establishments and 100% of residences will be weatherized. 84% of both commercial and industrial establishments and residences will have increased electric efficiency. Note – the scenarios only include weatherization of 28% of commercial and industrial establishments as that is the goal in the statewide CEP. As noted in goal 8.4, the Town's goal is to strive for weatherization of 100% of commercial/industrial establishments and residences by 2050.
- Total Energy Use per Capita: Total energy use per capita will be 45% lower than it was in 2015.
- Transportation Fuels: Electric vehicles will increase to 89% of the light duty vehicle fleet, and 96% of energy used by heavy duty vehicles will come from biodiesel.

[1] For more information on the Long-Range Energy Alternatives Program and the work conducted by the Vermont Energy Investment Corporation, see the 2018 Chittenden County ECOS Plan, Appendix 6: http://www.ecosproject.com/wp/wp-content/uploads/2017/09/ECOSPlan_ProcessSupplement6_EnergyData_Methodology_Final20180615.pdf

- Increased Generation: Additional renewable energy generation of 13,517 - 23,594 MWh annually will be sited in Hinesburg.

Electricity

The power supply for Vermont's electric utilities comes from many sources including Hydro Quebec, Seabrook, NH nuclear plant, small hydro, the New England power grid (predominately natural gas generation plants), biomass, wind, and solar. Hinesburg-based energy generation currently produces 1,458 MWh of electricity annually from renewable sources including building and ground-mounted photovoltaics on various properties, a small wind turbine on the north side of the village area (NRG Systems property). Electricity is also produced by diesel generators at Clifford Lumber and Hinesburg Sand and Gravel in the Industrial 1 district (necessitated by the lack of three phase power). Currently, Hinesburg's local electric distribution is provided by Green Mountain Power and the Vermont Electric Cooperative. (See the "Renewables" section below for more information on generation in Hinesburg.) 2015 electric use in Hinesburg can be seen in Table 1 below.

Table 1. Electrical Energy Use, 2015 (MWh)

Residential	13,586
Commercial and Industrial	8,212
Total	21,797

Sources: Efficiency Vermont, October 2017

The Vermont Electric Power Company (VELCO) also maintains a high voltage (115kV) transmission line running north/south on the western side of the town. This line is part of VELCO's statewide network of transmission lines that serve to bring electrical power into the state and to distribute it. The Town has a stake in future improvements to the VELCO line, especially given that much of the transmission line is located in the rural agricultural portion of Hinesburg. VELCO upgraded the transmission power poles on the high voltage lines extending through Hinesburg in 2014. Though energy use per capita must decrease to meet Vermont's 2050 energy goals, the use of electricity will actually increase. Electricity from renewable sources will power things like vehicles and heat pumps, switching those sectors away from fossil fuels. See Table 2 below for the LEAP model's projected electricity use between 2015-2050 to meet the State's 2050 energy goals.

Table 2. LEAP Model Estimated Future Electrical Energy Use in Hinesburg, 2015-2050

	2015**	**2025**	**2035**	**2050**
Without Industrial (MWh)	14,480	17,446	22,236	28,816
Industrial Only (MWh)	3,990	5,661	7,320	9,825
Total (MWh)	18,470	23,106	29,555	38,641
Total Electric Energy Saved (MWh)	248	2,953	5,962	11,150
Residences that have increased their Electric Efficiency	3%	30%	58%	98%
Commercial and Industrial Establishments that have Increased Their Electric Efficiency	3%	30%	58%	98%

Source: LEAP Model

**Please note that industrial electricity use is recognized as the most difficult element to project in the LEAP model, because of regional discrepancies in data from the commercial and industrial sector. Therefore, projected electricity use and total energy use are reported two ways: with industrial electricity use included and excluded.*
***2015 numbers are derived from the LEAP model and may vary from the actual measurements reported by utilities.*

Thermal Energy Use

Natural Gas, Fuel Oil, Propane, Kerosene

"Most of the energy used in Vermont comes from non-renewable sources. Natural gas and petroleum products account for 62% of Vermont's total energy usage… Vermont consumed 15.3 million barrels of petroleum and 9.6 billion cubic feet of natural gas in 2013, the most recent year for which data are available. Although they are the state's biggest drivers of climate change and air pollution, fossil fuels continue to account for our majority share of energy consumption because of their relatively low price, well-established distribution system, compatibility with existing infrastructure and equipment, and on-demand characteristics" (from VT CEP, pg. 389). Fuel oil, propane and kerosene are widely used to heat homes in much of Hinesburg, with the exception of the village area where natural gas is available. Exact usage of natural gas is reported annually by Vermont Gas (see Table 4) but there are no other exact counts of home heating fuel use for Hinesburg. However, estimates from the US Census Bureau are shown in Table 3.

Table 3. 2017 Home Heating Estimates

Utility gas	18% of homes
Fuel oil, Kerosene	35% of homes
Propane	27% of homes
Wood	12% of homes
Please note that these are estimates with a relatively high margin of error and should be used with caution.	
Sources: American Community Survey 2013-2017 5-Year Estimate, Table B25040: House Heating Fuel	

Vermont Gas brought natural gas to Hinesburg in 2009. Pipes were laid to serve most of the greater village area. Approximately 500 homeowners and businesses have the option to use natural gas. As of 2014, the conversion to natural gas has been 78% of the residential and non-residential buildings able to connect to the system. This includes the majority of the municipal, commercial, and institutional buildings in Town. Natural gas usage in Hinesburg as of 2015 is shown in Table 4 below.

Table 4. Current Thermal Energy Use from Natural Gas, 2015

Total Residential Natural Gas Consumption (MMBtu)	24,483 (52% of total)
Total Commercial/Industrial Natural Gas Consumption (MMBtu)	22,388 (48% of total)
Total Municipal Natural Gas Consumption (MMBtu)	46,872
Sources: Vermont Gas	

In 2014 Vermont Gas Systems became one of Vermont's energy efficiency utilities and has been actively assisting home and building owners to conserve natural gas. The programs help owners identify, contract and pay for a portion of gas energy improvements for the more efficient use of this fuel. Meeting Vermont's 2050 energy goals will require customers to switch away from natural gas to a renewable fuel. As of this writing, the town is debating a measure to prohibit additional pipeline expansions within Hinesburg.

Commercial Energy Use & Efficiency Services

There are approximately 87 commercial, industrial and institutional buildings and facilities in Hinesburg. Commercial/Institutional/Industrial (CII) buildings are defined as where people are not living on a permanent basis. CII buildings consume approximately one half of the total building energy in Hinesburg. Much room for improvement remains, even though many gains have been made over the years through high efficiency equipment, shell retrofit, above-code new construction and improved processes. Energy efficiency and recapture are also possible in commercial agricultural operations – e.g., reverse osmosis in sugaring operations, dairy farm methane digesters, etc. CII entities are typically focused on return on investment for reduced energy dollar expenditures instead of greenhouse gas emissions. The Energy Committee can help building owners understand that economically attractive energy efficiency projects will have ecological benefits as well. The Energy Committee plans to assist CII owners to conform to the updated and more stringent building code CBES 2015. Additionally, the committee will advise the Planning Commission and Selectboard on possible adoption of a Stretch Energy code. The LEAP model's projected changes in commercial energy use to meet the State's 2050 energy goals are shown in Table 5 below.

Table 5. LEAP Model Estimated Future Commercial Thermal Energy Use in Hinesburg, 2015-2050

	2015	2025	2035	2050
Total Commercial Thermal Energy Use (MMBtu)	49,770	48,708	46,394	41,036
Percent of Commercial Establishments Weatherized by Target Year	8%	15%	16%	28%
Energy Saved by Weatherization by Target Year (MMBtu)	1,195	2,618	3,630	8,749
Commercial Establishments Using Heat Pumps (%)	0%	16%	25%	28%
Commercial Thermal Energy Use by Heat Pumps (MMBtu)	92	3,950	7,807	11,665
Commercial Establishments Using Wood Heating (%)	5%	7%	8%	8%
Commercial Thermal Energy Use Attributable to Wood Heating (MMBtu)	3,697	5,894	8,118	11,885
Sources: LEAP Model, Department of Public Service, Department of Labor				

Residential Energy Use & Efficiency Services

The residential sector of Hinesburg housing stock accounts for a significant proportion of energy use and Hinesburg's carbon release to the atmosphere. Hinesburg's housing stock varies significantly with regard to energy efficiency and the use of renewable energy. The LEAP model's projected changes to residential heating to meet the 2050 goals can be seen in Table 6 below.

Table 6. LEAP Model Estimated Future Residential Thermal Energy Use in Hinesburg, 2015-2050

	2015	2025	2035	2050
Total Residential Thermal Energy Use (MMBtu)	173,852	155,857	132,149	91,494
Percent of Residences Weatherized by Target Year	1%	14%	36%	100%
Energy Saved by Weatherization by Target Year (MMBtu)	618	7,275	19,872	62,199
Percent of Residences Using Heat Pumps	3%	18%	37%	60%
Residential Thermal Energy Use from Heat Pumps (MMBtu)	1,739	10,102	20,783	30,470
Residences Using Wood Heating (%)*	14%	14%	14%	14%
Residential Thermal Energy Use from Wood Heating (MMBtu)	27,214	28,621	28,649	25,171

The LEAP model estimates a future scenario that shows one way for Chittenden County's communities to meet the state's 2050 energy goals. However, actually meeting these goals may take a different path than modeled. In Hinesburg, it may be more effective for residents to switch to wood heating systems rather than heat pumps, or to use wood heating as a backup system for heat pumps. Future iterations of this plan will examine new models to show an increased adoption of wood heating. This may also serve to reduce the small amount of natural gas energy that the LEAP model assumes will still be used in Hinesburg and other Chittenden County municipalities by 2050.

Sources: LEAP Model, Department of Public Service

To move toward the goal of 90% renewable energy by 2050 and all new homes at net zero energy by 2030, the following are recommended:

- All new homes built are recommended to be net zero energy by the year 2030. Between 2015 and 2020 25% of the energy required to electrify and heat new homes will be supplied from renewable energy. Between 2020 and 2025 50% of the energy required to electrify and heat new homes will be supplied from renewable energy. Between 2025 and 2030 75% of the energy required to electrify and heat new homes will be supplied from renewable energy.

- New homes should be encouraged to include photovoltaics to charge an electric vehicle as well as ready connections to charge an electric vehicle. Work on developing requirements for electric vehicle charging capacity in large residential developments and multifamily dwellings.

- Reaching 90% energy use from renewables by 2050 will require changes to existing homes. Hinesburg should encourage residents to improve energy efficiency of existing homes (e.g., weatherization), and shift to non-fossil fuel thermal sources of energy.

- Homeowners should be encouraged to take advantage of the energy audit services of the various state agencies that sponsor and/or offer these services. These audits should be comprehensive in nature, looking at ways to reduce energy use as a first measure and then look to supply renewable energy.

- Building permits being issued for changes to existing homes should include information as to how a home can achieve net zero energy.

- Those homes that do not have a reasonable site to capture renewable energy should consider community sources of renewable energy.

- Wood combustion appliances should meet the state requirements for allowable particulates released in to the atmosphere. Wood combustion should be a secondary source of thermal energy to a cleaner primary source whenever possible.

- Energy efficient lighting and appliances should be encouraged in all new homes.

- Hinesburg should consider requiring new construction to achieve a higher level of efficiency above energy code (RBES).

- Hinesburg should promote weatherization and fuel switching opportunities from Efficiency Vermont and utilities working towards their Renewable Energy Standard Tier III requirements,[2] and have an inventory of other financing options for homeowners wishing to pursue energy efficiency measures and renewable energy. Between 2015 and 2017, customers in Hinesburg saved a total of $275,910 on electric and thermal energy bills due to energy efficiency measures. The Hinesburg Energy Committee would be the logical group for organizing and dissemination this information. Recent projects coordinated in Hinesburg by Efficiency Vermont can be found in Table 7 below. Other weatherization projects that were not affiliated with Efficiency Vermont have probably also taken place, but are not measured here.

Table 7. Recent Residential Energy Efficiency Projects

	2014	2015	2016	2017
Home Performance with ENERGY STAR® Projects	14	18	21	26
Total Residential Projects (includes Home Performance with ENERGY STAR® projects)	37	86	111	265
Source: Efficiency Vermont, November 2018				

Transportation

Transportation accounts for a large part of the state's overall energy usage, and is the leading producer of greenhouse gases in Vermont and Hinesburg. Gasoline continues to be the principal fuel for transportation.

In order to implement Vermont's Comprehensive Energy Plan, effort must be made on the local level to reduce both the vehicle miles traveled and the reliance on fossil fuels used in transportation. Successes on this front include the Hinesburg Rides program formed in 2008, the introduction of a Burlington-Hinesburg-Middlebury bus route in 2012, the introduction of a local bus service throughout Hinesburg in 2018, and the installation of EV chargers, as discussed in the Transportation section of this plan.

[2] Visit the Vermont Public Utility Commission's website for more information about renewable energy standards for Vermont electric distribution utilities: https://puc.vermont.gov/electric/renewable-energy-standard

New sidewalks and crosswalks in the village area have promoted more walking in the town as an alternative to vehicle use. Continuing to build more sidewalk systems, as well as adding bike lanes to town roads and in new developments will encourage more local economic development at the same time as residents are using less fossil fuel to get around and staying more physically fit.

The need for a much higher use of renewable energy in transportation will be a challenge in Hinesburg and the state. In 2017, the DMV reported 3,155 fossil fuel burning light duty vehicles registered in Hinesburg, compared to only 12 electric vehicles. Hybrid vehicles meet that goal to some extent, but Hinesburg needs to plan to accommodate the use of plug-in electric vehicles by our residents and other drivers passing through our town. Electric charging stations, powered by photovoltaic arrays and from the grid, will be an important addition to the region's transportation infrastructure and should be considered as part of all new dwelling construction. Another way for Hinesburg to meet the goals of Vermont's Comprehensive Energy Plan is to promote the use of biofuel as a replacement for petroleum-based fuel for heavy duty vehicles. Oil seed crops, such as sunflowers, grown on what are now unproductive fields, could be an economic boost to local farmers and oil seed processors. The LEAP model's projected changes in transportation energy to meet the 2050 energy goals are shown in Table 8 below.

Table 8. LEAP Model Estimated Future Transportation Energy Use in Hinesburg, 2015-2050

	2015	2025	2035	2050
Total Light Duty Transportation Energy Use (MMBtu)	223,050	185,821	117,705	51,301
Electricity Used for Light Duty Transportation (MMBtu)	177	2,478	17,081	36,049
Light Duty Electric Vehicles (% of Vehicle Fleet)	0%	6%	41%	89%
Biofuel Blended* Energy Used for Light Duty Transportation (MMBtu)	222,873	183,343	100,625	15,252
Biofuel Blend*Light Duty Vehicles (% of Vehicle Fleet)	100%	94%	59%	11%
Heavy-Duty Transportation Energy Use from Biodiesel (Percent of Total)	94%	33%	58%	96%
Heavy-Duty Transportation Energy Use from Fossil Fuels (Percent of Total)	6%	67%	42%	4%
**This measures biofuels blended with fossil fuels. A common example is gasoline with ethanol mixed in.*				
Sources: VTrans, LEAP Model				

Total Energy Use

Making these changes to meet the Vermont state energy goals will result a large decrease in per-capita energy use, as shown in Tables 9 and 10 below. Future projects are shown with and without industrial energy use, as the sector is not well represented by the LEAP model and the projections for this energy type may not be reliable.

Table 9. LEAP Model Estimated Future Total Energy Use Per Capita (Including Industrial Electricity Use*) in Hinesburg, 2015-2050

	2015	2025	2035	2050
Total Energy Use (MMBtu)	509,692	469,224	397,090	315,675
Population	4,489	4,682	4,794	5,016
Total Energy Use Per Capita (MMBtu)	114	100	83	63
Reduction in Total Energy Use Per Capita since 2015	--	12%	27%	45%

Source: LEAP Model

**Please note that industrial electricity use is recognized as the most difficult element to project in the LEAP model, because of regional discrepancies in data from the commercial and industrial sector. Therefore, projected electricity use and total energy use are reported two ways: with industrial electricity use included and excluded.*

Table 10. LEAP Model Estimated Future Total Energy Use Per Capita (Excluding Industrial Electricity Use) in Hinesburg, 2015-2050

	2015	2025	2035	2050
Total Energy Use (MMBtu)	496,077	449,909	372,116	282,152
Population	4489	4682	4794	5016
Total Energy Use Per Capita (MMBtu)	111	96	78	56
Reduction in Total Energy Use Per Capita since 2015	--	13%	30%	49%

Source: LEAP Model

**Please note that industrial electricity use is recognized as the most difficult element to project in the LEAP model, because of regional discrepancies in data from the commercial and industrial sector. Therefore, projected electricity use and total energy use are reported two ways: with industrial electricity use included and excluded.*

Public Energy Education

The town has already identified the need to create programs, processes and systems to foster sustainable procurement and use of energy. In 2014 the Selectboard initiated a Hinesburg Energy Committee to formally promote the responsible use of energy. The committee consists of up to seven members of the community each serving three-year terms. This committee acts in an advisory capacity for the other boards and commissions in town. The energy committee has helped the town's overall effort to promote sustainability through several initiatives:

- The committee has advised town officials on how several potential developments under review could orient buildings on the plans to take advantage of passive solar gains and how the developments could incorporate renewable energy.

- The committee submitted a motion to have the town adopt the Energy Code Plus building standards instead of the Residential Building Energy Code.

- The committee presents an annual Efficiency Vermont Button Up workshop for the community each fall. The purpose of the presentation was to educate residents on the importance of making energy efficiency upgrades on homes and shows homeowners how they can properly install efficiency upgrades on their own homes.

- The committee held a four-meeting Net Zero Energy and Healthy Homes workshop series in 2018.

Renewable Energy Generation

In addition to reducing energy consumption, meeting Vermont's renewable energy goals will require a significant increase in renewable energy generation in Hinesburg. Renewable energy resources are defined in State statute (24 V.S.A. §4303) as, "energy available for collection or conversion from direct sunlight, wind, running water, organically derived fuels, wood and agricultural sources, waste heat, and geothermal sources." Achieving the State CEP goal of supplying 90% of our energy needs from renewables by 2050, requires an average increase in renewables of approximately 2.57% per year. The Town must promote this goal and work aggressively to achieve it. The Town has installed limited renewables on municipal property – e.g., solar trackers next to the wastewater treatment facility; solar powered lights for the Town Office park and ride. Residents and businesses have also increased usage of solar, wind, and biomass heat (e.g., wood pellets). As of May 2019, the Vermont Energy Dashboard (http://www.vtenergydashboard.org/my-community/hinesburg/statistics) showed 235 renewable energy sites in Hinesburg, as shown in Table 11 below.

Table 11. Existing Renewable Electricity Generation

	Sites	Power (MW)	Energy (MWh)
Solar	231	3.07	3,771
Wind	2	.012	29
Biomass (Wood)	2	Unknown	Unknown
Total	235	3.09	3,800

Source: Community Energy Dashboard, May 2019

Increasing the use of renewable energy sources will require concerted efforts by the entire community, such as:

- Additional renewables on municipal properties and facilities, particularly roof-mounted solar (e.g., Town Highway garage, etc.) and ground-mounted solar.
- Use of electric vehicles for light or medium duty municipal vehicles, and use of biofuel vehicles for heavy duty municipal vehicles to the extent possible. Provision of one or more public electric vehicle charging stations – e.g., Town Office, Police Station, Carpenter-Carse Library, etc.

- Ensure that new construction makes use of renewables to a far greater extent than currently mandated. Revise land use regulations to clarify and prioritize maximizing solar gain, such that any new construction must get as much direct sunlight as possible, while balancing the need to create vibrant streetscapes in the village growth area that necessarily include trees and variable building orientation.

In Hinesburg, these generation goals mean that annual generation capacity in Hinesburg must be increased by between 13,517 MWh and 23,594 MWh, as shown in Table 12 below.

Table 12. New Renewable Electricity Generation Targets

	2025		2035		2050	
	Low	**High**	**Low**	**High**	**Low**	**High**
Generation Targets – Any Technology (MWh)	3,862	6,741	7,724	13,482	13,517	23,594

Sources: LEAP Model and CCRPC Modeling
These targets are in addition to the 1,458 MWh generated annually in the municipality as of July 2017
Chittenden Country Regional Planning Commission has set high and low generation targets for the county and each municipality (see Supplement 6 of the 2018 ECOS Plan for the methodology). Any amount of generation within this range means that the town is producing its share of renewable energy generation for the county.

The Town of Hinesburg has more than enough land area to meet these goals with current renewable energy technology. The graphics below show the amount of land needed to produce the generation targets with solar or wind. These hypothetical scenarios show that Hinesburg's high generation goal could be met with as little as 0.6% of the Town's total land area. Estimates of Hinesburg's total generation capacity for various technologies can be found in Tables 13 and 14 below.

Figure 1. Land area needed to meet Hinesburg's generation targets with 100% solar

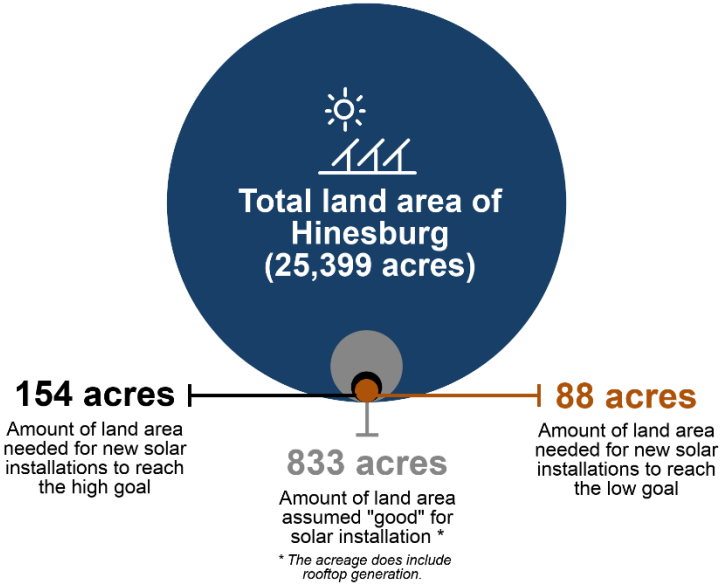


Figure 2. Land area needed to meet Hinesburg's generation targets with 100% wind

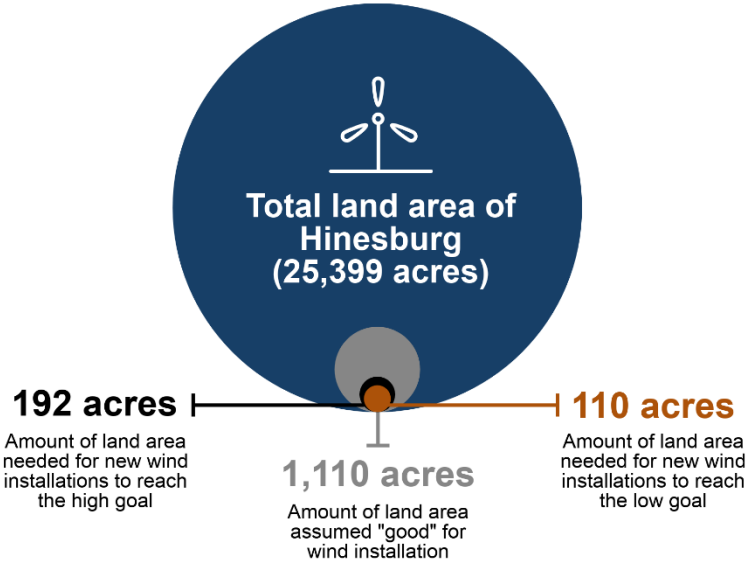


Table 13. Land Available for Wind and Solar Generation

	Prime Potential	Base Potential
Solar	833 acres (3% of town)	5,237 acres (21% of town)
Wind	1,110 acres (4% of town)	10,824 acres (43% of town)

Source: CCRPC and the Department of Public Service, Vermont Center for Geographic Information

Table 14. Projected Renewable Electricity Generation Potential

	Power (MW)	Energy (MWh)
Rooftop Solar*	4	4,463
Ground-Mounted Solar* – Prime	104	127,684
Ground-Mounted Solar* – Base	87	107,049
Wind – Prime	44	136,080
Wind – Base	433	1,327,422
Hydro	Future hydroelectric capacity may be available at existing small dams	
Biomass	See Map 6 for forested areas	

Source: CCRPC and the Department of Public Service

*Rooftop solar potential is calculated by assuming that a certain percentage of rooftops can hold solar systems. Ground-mounted solar potential reports how much land could be developed with solar based on its aspect and elevation, and does not remove space taken up by impervious surfaces like roofs. Therefore, rooftop solar potential cannot be added to ground-mounted solar potential, as this would lead to some generation potential being double counted.

Energy Siting & Screening Policies

Local Policies

Hinesburg encourages the development of renewable energy generation and storage facilities (e.g., solar, wind, etc.), but the scale, context and impacts of a project must be considered. Visual screening from public roads and neighboring residences is an important consideration for any ground-mounted facility over 15kw, and is particularly sensitive for facilities over 150kw. Such screening need not hide such facilities, rather it should be used to ensure the facilities blend with the surroundings. State statute (24 V.S.A. §4413b) prohibits municipal land use regulations from regulating energy generation and transmission facilities. Such facilities are instead reviewed by the VT Public Utility Commission (PUC) pursuant to 30 V.S.A. §248. Section 248 does require that ground-mounted solar generation facilities comply with municipal screening requirements as long as the PUC finds that compliance would not have the effect of prohibiting or interfering with the functional use of the facility. Hinesburg's Zoning Regulations were revised in 2016 to include screening requirements for such facilities. Although important, screening is only a tool to help blend or hide development after a site has been selected. More importantly, such development must be properly sited in the first place.

This Town Plan provides clear guidance as to the sensitive natural and cultural features that shall inform site selection for any development. The policies in this plan shall be applied to energy generation facilities over 15kw and to transmission facilities, to ensure that such facilities will not unduly interfere with orderly development. **Because this plan is an "enhanced energy plan," the following policies will be given "substantial deference" in proceedings before the Public Utilities Commission.**

- Primary resource areas are inappropriate for siting of energy generation facilities and shall be avoided. Primary resource areas are:
  - Class 1 and 2 wetlands (Vermont Significant Wetland Inventory and advisory layers) and associated buffers (Map 7)
  - Flood hazard areas (Map 7);
  - Steep slopes 25% or greater (Map 9)
  - Surface waters and setback areas (Map 7)
  - Rare, threatened, and endangered species locations and significant natural communities (Map 9)
- Secondary resource areas shall also be considered, and impacts to such areas shall be minimized. Secondary resources areas are:
  - Moderately steep slopes 15-25% (Map 9)
  - Prime and statewide agricultural soils (Map 5);
  - Core wildlife habitat (Map 14)
  - Wildlife corridors (Map 14)
  - Deer wintering areas (Map 9)
- Particularly in the most rural portions of town (i.e., AG & RR2 zoning districts) forest clearing and impacts to prime agricultural soils shall be minimized to protect the working landscape. Context is important. For example, it's reasonable for a working farm to use a portion of its prime agricultural soils for ground-mounted solar if it supports the continuation of the larger agricultural land use. However, the wholesale conversion of forest and/or prime agricultural soils so as to exclude concurrent farm and/or forestry use of a particular property is unacceptable. Important natural features are discussed in depth in Chapter 5, and are depicted on the maps that support this plan.
- Development potential within the village growth area should also be respected. As Hinesburg's sole growth center, land intensive energy generation and transmission facilities shall be avoided, unless incorporated into a preferred location as noted below. The intent is not to prohibit such facilities entirely in the village growth area. However, energy generation and transmission facilities in this area must preserve the following: buildout objectives as noted throughout this plan (e.g., affordable housing, senior housing, commercial/industrial, etc.), vibrant streetscapes, visual character of the village, ability to have actively used and interconnected greenspaces.
- Town-wide, preferred locations for energy generation facilities include already developed areas. For example: on structures (e.g., roof-mounted), in parking lots, within a grouping of structures and infrastructure (e.g., farm building complex, industrial campus/park, residential dwelling

ACT 174 AND SUBSTANTIAL DEFERENCE

In 2016, Act 174 established a process for "enhanced energy planning," which encourages municipalities to write plans that are "energy compliant." This plan meets the standards for energy planning established by Act 174 and outlined in 24 V.S.A. §4352. Therefore, the policies of this plan will receive substantial deference in §248 proceedings. The Public Utility Commission shall apply the land conservation measures or specific policies in accordance with their terms unless there is a clear and convincing demonstration that other factors affecting the general good of the State outweigh the application of the measure or policy. This is a higher standard of review than "due consideration," which the municipal plan's policies would otherwise receive.

cluster), on the old Town landfill site, in non-productive portions of gravel pits that have been through site reclamation. Many of these areas are already defined as preferred sites in the Vermont Net Metering Rules. Projects sited on preferred site benefit from larger generation limits and higher net metering rates. Hinesburg hopes to define other appropriate locations as preferred sites during the life of this plan. As sites are suggested in the future, there are two ways they can be formally defined as preferred sites: through an amendment to this plan or through a joint letter from Hinesburg's planning commission, Selectboard and the Chittenden County Regional Planning Commission.

- The Town's Subdivision Regulations require underground utility lines for new service to subdivisions. Although substantially more expensive to install, underground utility lines make sense given the community's interest in maintaining the Town's rural character and aesthetics. Although large scale transmission lines are difficult to place underground, energy generation facilities should utilize underground lines both within the project and to feed the facility.

State Policies

The policies above are not the only policies that apply to energy facility siting in Hinesburg. The State of Vermont has defined certain resources as known and possible constraints, some of which are the same as Hinesburg's primary and secondary resources and some of which are not. These areas are protected by the ECOS Regional Plan and state agency review during the Public Utility Commission review process. State defined known constraints are areas in which the State of Vermont finds that development, including renewable energy generation, is not appropriate. These resources are shown on the map of Known State Constraints. They are:

- FEMA Floodways
- DEC River Corridors
- National Wilderness Areas
- State-significant Natural Communities
- Rare, Threatened, and Endangered Species
- Vernal Pools (confirmed and unconfirmed)
- Class 1 and 2 wetlands (Vermont Significant Wetland Inventory and advisory layers)

State defined possible constraints are areas in which the State of Vermont finds that the effects of development, including renewable energy generation, may need to be mitigated. These resources are shown on the map of Possible State Constraints. They are:

- Agricultural Soils and Hydric Soils
- Act 250 Agricultural Soil Mitigation Areas
- FEMA Special Flood Hazard Areas
- Vermont Conservation Design Highest Priority Forest Blocks (Forest Blocks – Connectivity, Forest Blocks – Interior, Forest Blocks - Physical Land Division)
- Highest Priority Wildlife Crossings
- Protected Lands (State fee lands and private conservation lands)
- Deer Wintering Areas

TOWN OF HINESBURG
NOTICE OF PUBLIC HEARING

The Hinesburg Planning Commission will hold a public hearing on Wednesday, October 28, 2020, at 7pm to receive public comment on proposed changes to the Town Plan. Due to covid-19 and the closure of the Town Office, this public hearing will be held remotely via Zoom – meeting id 850 5578 1467; meeting password 123456; meeting connection link https://us02web.zoom.us/j/85055781467; dial-in phone number 1-646-558-8656.

Revisions are proposed to the energy chapter of the plan (chapter eight) – i.e., complete re-write of this chapter, and a series of nine new supporting maps. These revisions affect all of Hinesburg.

Copies of the proposed revisions, new maps, a report on the plan's consistency with State statute, as well as the current Town Plan are available online - https://www.dropbox.com/sh/aisbaue5k37lk5s/AAAFjAv07TvcwS9UmEpDHOUya?dl=0. Additional information can be found on the Town web site (www.hinesburg.org), and by contacting Alex Weinhagen (Director of Planning & Zoning) at aweinhagen@hinesburg.org or 482-4209. A list of the plan section headings follows, as required pursuant to Title 24, Chapter 117 V.S.A. Section 4444 (b).

Chapter 8 – Energy
Chapter 10 – Implementation (to be updated to reflect Chapter 8 action items)

Notice Date – October 1, 2020

Existing Renewable Energy Sites & Preferred Sites

Hinesburg, Vermont
Act 174
The Energy Development Improvement Act of 2016

Existing Site Type

- Wind Site
- Hydropower
- Methane
- Wood Chip or Pellet Heat
- Solar Site

Preferred Sites

- Closed Landfill
- Sand or Gravel Pit
- Brownfield
- Parking Lots
- 3 Phase Power Lines
- Transmission Lines

This map and the corresponding data is intended to be used to inform energy planning efforts by municipalities and regions. They may also be used for conceptual planning or initial site identification by those interested in developing renewable energy infrastructure. They should NOT take the place of site-specific investigation for a proposed facility and should not be used as "siting maps".

0 0.5 1 2 Miles

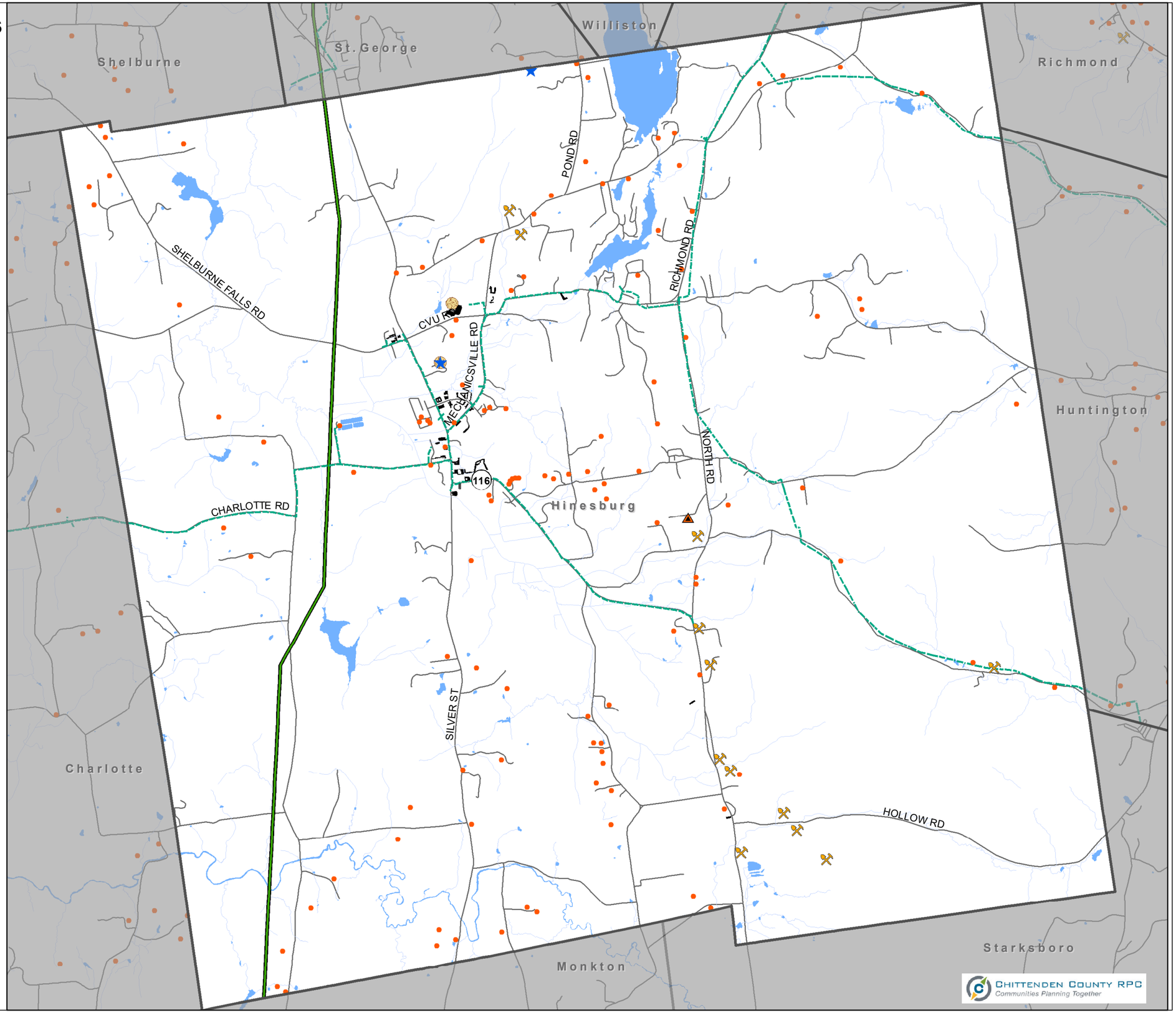
N

Sources:
Closed Landfill-ANR
Sand or Gravel Pit--ANR
Parking Lots-CCRPC
3-Phase Power-VCGI, BED
Existing Sites-EAN, 10.2017
Major Roads and Railroad - VTrans
Town Boundary and Water Body - VCGI
Map produced with ArcGIS,
State Plane Coordinate System NAD83.

Date: 2/12/2018

Disclaimer:
The accuracy of information presented is determined by its sources. Errors and omissions may exist. The Chittenden County Regional Planning Commission is not responsible for these. Questions of on-the-ground location can be resolved by site inspections and/or surveys by registered surveyor. This map is not sufficient for delineation of features on-the-ground. This map identifies the presence of features, and may indicate relationships between features, but is not a replacement for surveyed information or engineering studies.

Document Path: D:\Projects17\Act174\Maps\Towns\ExistingGeneration\ExistingGenTownLandscapeTemplate.mxd



Hydro- Electric Energy Resource Locations

Chittenden County, Vermont
Act 174
The Energy Development Improvement Act of 2016

This map and the corresponding data is intended to be used to inform energy planning efforts by municipalities and regions. The may also be used for conceptual planning or initial site identification by those interested in developing renewable energy infrastructure. They should NOT take the place of site-specific investigation for a proposed facility and should not be used of as "siting maps"

0 1.75 3.5 7 Miles

Document Path: D:\Projects17\Act174\Maps\County\Act174EnergyMap_CC_HydroGen.mxd

Legend

- Current Operating Hydroelectric Dams
- Unknown Capacity
- > 50kW Capacity
- < 10kW Capacity
- Low Hazard with >50 kW
- Low Hazard with <10KW
- Significant Hazard with <10KW
- 3 Phase Power Lines
- Transmission lines
- OH_Primary
- UG_Primary

N

Date: 4/26/2017

DRAFT

Milton
Lake Champlain
Westford
Underhill
Colchester
Essex
Winooski
Burlington
Essex Junction
Jericho
South Burlington
Williston
Shelburne
St. George
Richmond
Bolton
Hinesburg
Charlotte
Huntington
Buels Gore

CHITTENDEN COUNTY

Note: These maps are intended to provide guidance regarding appropriate and inappropriate places for renewable energy development based on a GIS analysis and to act as an initial resource for identifying suitable areas for energy siting and our region.

What these maps don't do. Take all local regulations into account and automatically prohibit or allow renewable energy generation and replace the detailed process a developer must go through to propose a site for a renewable energy.

These maps are not intended to be used without the accompanying policies contained within the regional energy plan.

Known local constraints are listed in the text.

Known State Constraints

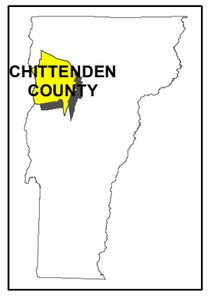
Hinesburg, Vermont
Act 174
The Energy Development Improvement Act of 2016

Known Constraints are the presence of conditions, based on statewide resources,that likely signal unsuitability for renewable energy development.

- Vernal Pools (Confirmed)
- Vernal Pools (Unconfirmed)
- FEMA Floodway
- Vermont Department of Environmental Conservation River Corridors*
- State-significant Natural Communities & RTE Species
- Class 1 and 2 Wetlands
- Stream Centerline

*Note: River corridors are comprised of meander belt and riparian buffer components for the purpose of achieving and maintaining stream equilibrium conditions. Small streams draining 0.5 to 2 square miles and a 50 ft. buffer are also included.

0 0.5 1 2 Miles



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Sources:
Vernal Pools; VCGI, 2017
DEC River Corridors;VCGI, 2017
FEMA DFIRM Floodways;VCGI,2017
RTE + Sig.Natural Comm;VCGI,2017
Wetlands;VSWI Wetlands Class Layer, VSWI Advisory Layer, 2017

Disclaimer:
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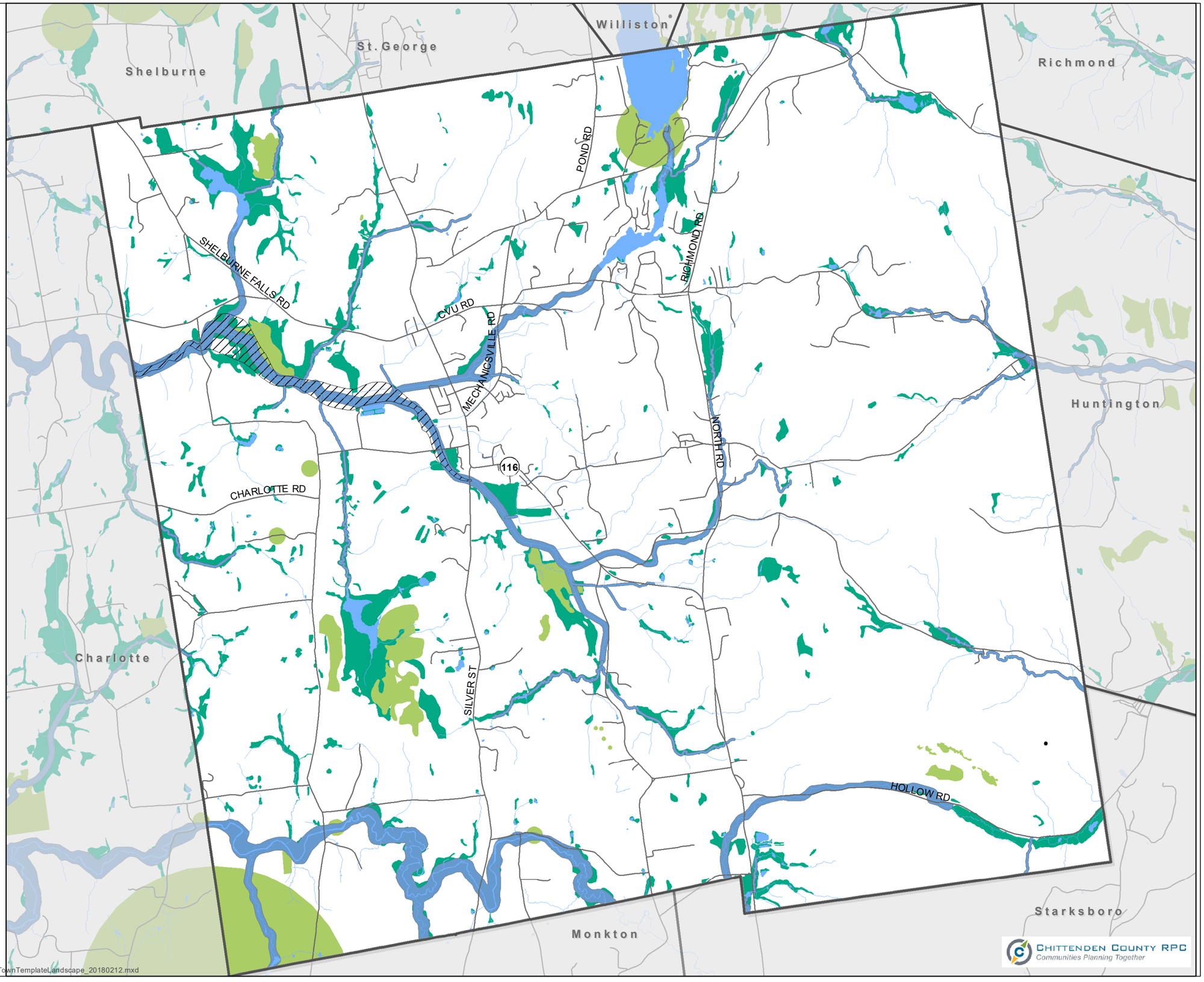
Date: 2/13/2018

Document Path: D:\Projects17\Act174\Maps\Towns\KnownConstraints\KnownConstraints_TownTemplateLandscape_20180212.mxd



CHITTENDEN COUNTY RPC
Communities Planning Together

Known Constraints

Hinesburg, Vermont
Act 174
The Energy Development Improvement Act of 2016

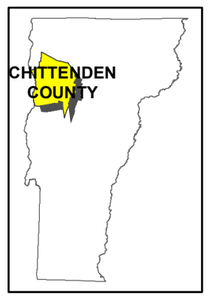
Known Constraints are the presence of conditions, based on statewide resources,that likely signal unsuitability for renewable energy development.

2018 Tax Parcel Boundary

State or Local Known Constraints

Note: Please see the Energy Siting & Screening Policies section of the Energy Chapter for a list of the individual constraints mapped here

0 0.5 1 2 Miles



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Sources:
Vernal Pools; VCGI, 2017
DEC River Corridors;VCGI, 2019
FEMA DFIRM Floodways;VCGI,2017
RTE + Sig.Natural Comm;VCGI,2017
Wetlands;VSWI Wetlands Class Layer, VSWI Advisory Layer, 2017

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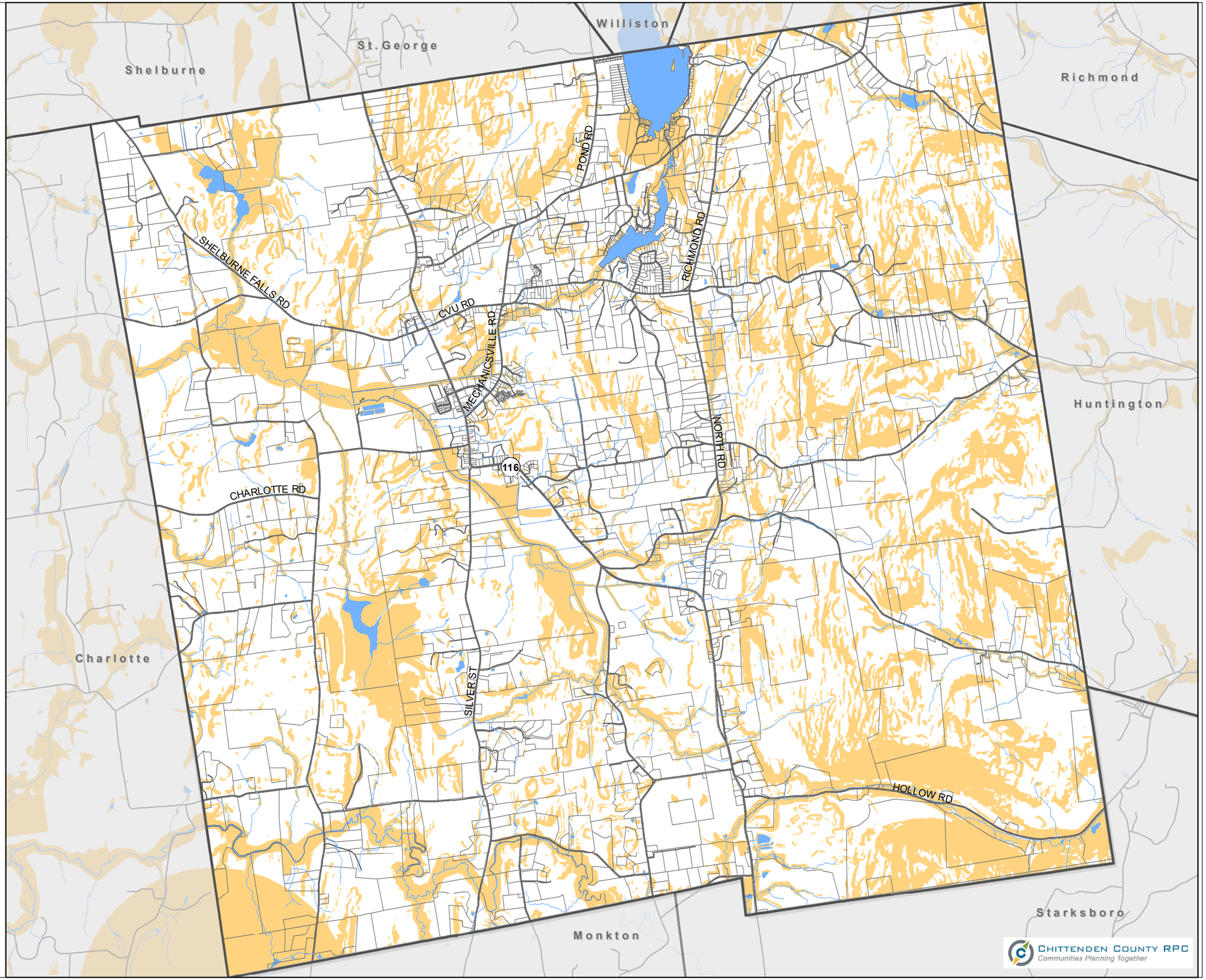
Date: 8/28/2019

Document Path: D:\Projects19\Hinesburg\KnownConstraints_20190823.mxd



Area Without Constraints

Hinesburg, Vermont
Act 174
The Energy Development Improvement Act of 2016

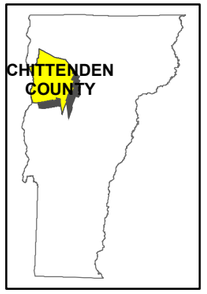
Possible Constraints are the presence of conditions, that would likely require mitigation and which may prove a site unsuitable after a site-specific study.

Area without state or local known/possible constraints

2018 Tax Parcel Boundary

Note: Please see the Energy Siting & Screening Policies section of the Energy Chapter for a list of the individual constraints mapped here

0 0.5 1 2 Miles



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Sources:
Agricultural Soils; VCGI, 2017
FEMA Special Flood Hazard Areas; VCGI, 2017
Protected Land; VCGI
Act 250 Mitigation Areas; VCGI, 2017
Deer Wintering Areas; VCGI, 2017
Priority Forest Blocks,Vermont Conservation Design
Hydric Soils; VCGI, 2017

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Date: 8/28/2019

Document Path: D:\Projects19\Hinesburg\NotConstrainedArea_20190823.mxd

Shelburne
St. George
Williston
Richmond
Huntington
Charlotte
Monkton
Starksboro
Hinesburg
SHELBURNE FALLS RD
POND RD
RICHMOND RD
CVU RD
MECHANICSVILLE RD
NORTH RD
116
CHARLOTTE RD
SILVER ST
HOLLOW RD

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Communities Planning Together

Possible Local Constraints are listed in the text

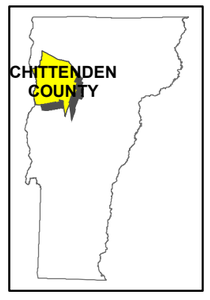
Possible State Constraints

Hinesburg, Vermont
Act 174
The Energy Development Improvement Act of 2016

Possible Constraints are the presence of conditions, that would likely require mitigation and which may prove a site unsuitable after a site-specific study.

- FEMA Special Flood Hazard Areas
- Agricultural Soils
- ACT 250 Ag Mitigation Parcel
- Hydric Soils
- Deer Wintering Areas
- Protected Lands
- Priority Forest Blocks (Connectivity)
- Priority Forest Blocks (Interior)
- Priority Forest Blocks (Physical Landscape Diversity)
- Stream Centerline

0 0.5 1 2 Miles



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Sources:
Agricultural Soils; VCGI, 2017
FEMA Special Flood Hazard Areas; VCGI, 2017
Protected Land; VCGI
Act 250 Mitigation Areas; VCGI, 2017
Deer Wintering Areas; VCGI, 2017
Priority Forest Blocks,Vermont Conservation Design
Hydric Soils; VCGI, 2017

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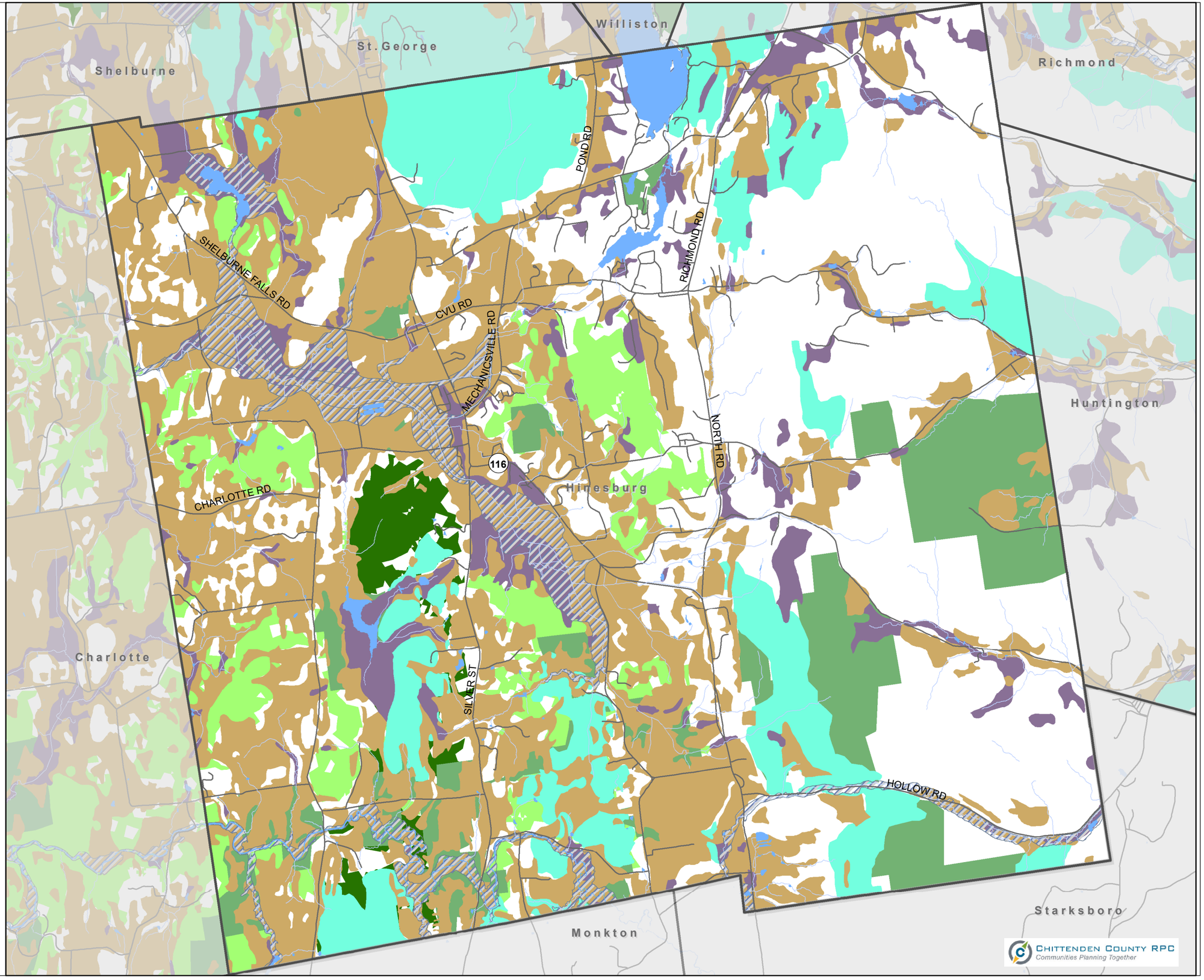
Date: 4/30/2017

Document Path: D:\Projects17\Act174\Maps\Towns\PossibleConstraints\PossibleConstraints_TownTemplateLandscape_20170430.mxd



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Possible Constraints

Hinesburg, Vermont
Act 174
The Energy Development Improvement Act of 2016

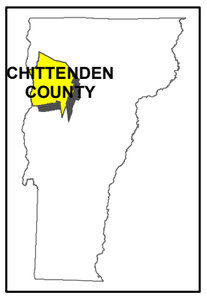
Possible Constraints are the presence of conditions, that would likely require mitigation and which may prove a site unsuitable after a site-specific study.

2018 Tax Parcel Boundary

State or Local Possible Constraints

Note: Please see the Energy Siting & Screening Policies section of the Energy Chapter for a list of the individual constraints mapped here

0 0.5 1 2 Miles



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Sources:
Agricultural Soils; VCGI, 2017
FEMA Special Flood Hazard Areas; VCGI, 2017
Protected Land; VCGI
Act 250 Mitigation Areas; VCGI, 2017
Deer Wintering Areas; VCGI, 2017
Priority Forest Blocks,Vermont Conservation Design
Hydric Soils; VCGI, 2017

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Date: 8/28/2019

Document Path: D:\Projects19\Hinesburg\PossibleConstraints_20190828.mxd

Williston
St. George
Shelburne
Richmond
Huntington
Hinesburg
Charlotte
Starksboro
Monkton
POND RD
RICHMOND RD
SHELBURNE FALLS RD
CVU RD
MECHANICSVILLE RD
NORTH RD
116
CHARLOTTE RD
SILVER ST
HOLLOW RD

CHITTENDEN COUNTY RPC
Communities Planning Together

Potential Solar Energy Resource Areas

Hinesburg, Vermont
Act 174
The Energy Development Improvement Act of 2016

Prime Solar: Areas with high solar potential and no state/local known & possible constraints

Base Solar: Areas with high solar potential and a presence of state/local possible constraints

3 Phase Power Lines

Transmission lines

This map and the corresponding data is intended to be used to inform energy planning efforts by municipalities and regions. They may also be used for conceptual planning or initial site identification by those interested in developing renewable energy infrastructure. They should NOT take the place of site-specific investigation for a proposed facility and should not be used as "siting maps"

0 0.45 0.9 1.8 Miles

Sources:
Solar Energy Resource Areas;VCGI,2017
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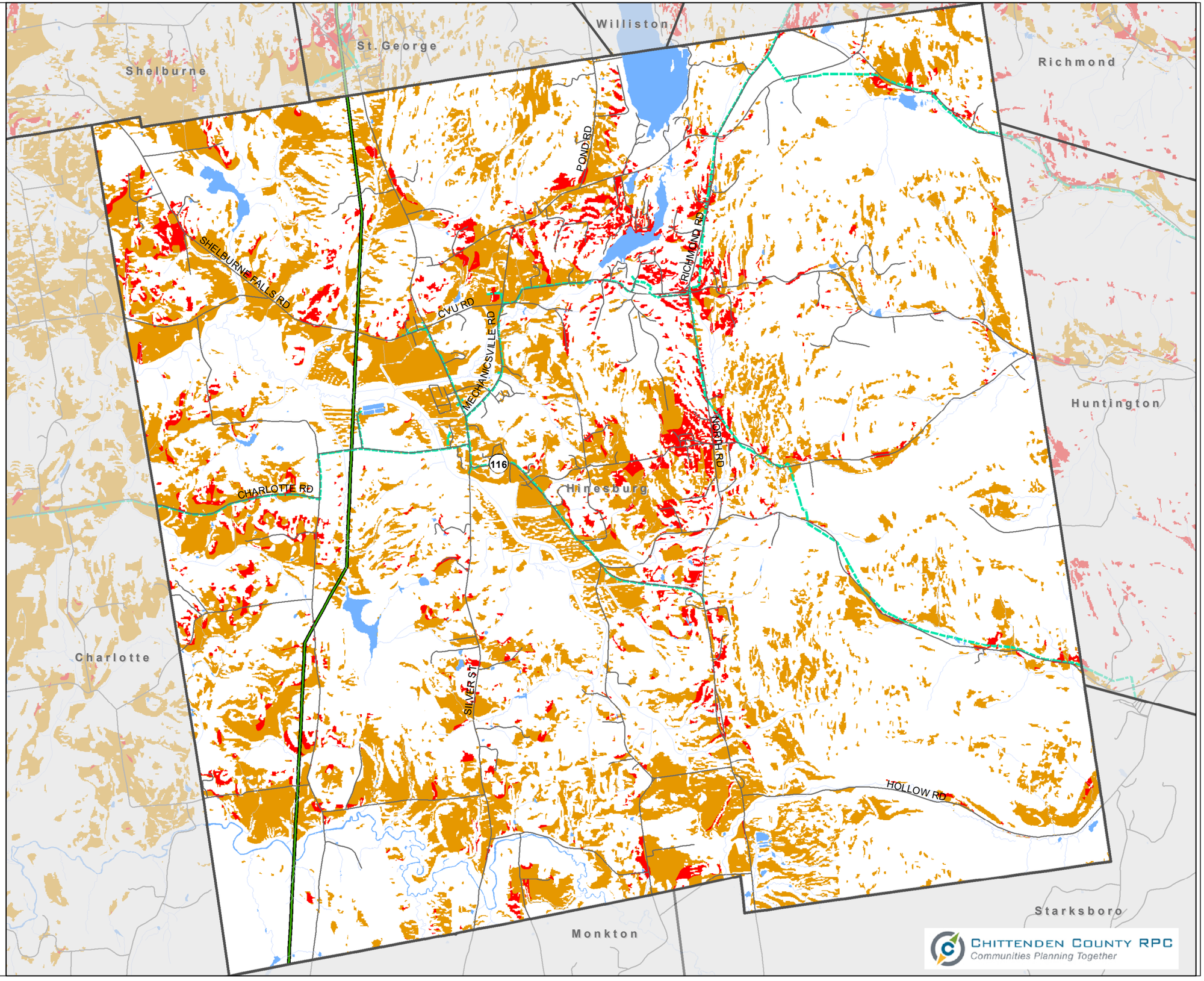
N

Date: 2/12/2018

Document Path: D:\Projects17\Act174\Maps\Towns\Solar\Solar_TownTemplateLandscape_20180212.mxd



CHITTENDEN COUNTY RPC
Communities Planning Together

Potential Wind Energy Resource Areas

Hinesburg, Vermont
Act 174
The Energy Development Improvement Act of 2016

Prime Wind: Areas with high wind potential and no state/local known & possible constraints

Base Wind: Areas with high wind potential and a presence of state/local possible constraints

3 Phase Power Lines

Transmission Lines

This map and the corresponding data is intended to be used to inform energy planning efforts by municipalities and regions. They may also be used for conceptual planning or initial site identification by those interested in developing renewable energy infrastructure. They should NOT take the place of site-specific investigation for a proposed facility and should not be used as "siting maps".

0 0.5 1 2 Miles

N

Sources:
Wind Energy Resource Areas;VCGI,2017
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Date: 2/12/2018

Document Path: D:\Projects17\Act174\Maps\Towns\Wind\Wind_TownTemplateLandscape_20180212.mxd

Shelburne
St. George
Williston
Richmond
Huntington
Hinesburg
Charlotte
Monkton
Starksboro
SHELBURNE FALLS RD
CHARLOTTE RD
CVU RD
MECHANICSVILLE RD
POND RD
RICHMOND RD
NORTH RD
SILVER ST
HOLLOW RD
116

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AA