

Town of Underhill



2021 Town Plan

Prepared by: the Underhill Planning Commission

Photograph by Tim Durbrow

February 19, 2020

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Credits

In Gratitude

The Town of Underhill Planning Commission greatly appreciates the work and ability that Andrew Strniste contributed to the 2021 Town Plan. His guidance from the beginning to the end kept the Planning Commission moving to completion. Much of the work that follows was his: writing, editing, assemblage of pictures and maps, formats and other details too numerous to mention.

Photograph Log

1. Cover Page – Photograph by Tim Durbrow
 - a. Photograph of Mt. Mansfield during the winter months.
2. Purpose & Introduction Section Page – Photograph by Todd Barker & Val Stori
 - a. Photograph of Mt. Mansfield during the winter months.
3. Photograph 1.1 – Photograph submitted by Tim Durbrow
 - a. Photograph of Mt. Mansfield with a view of Underhill Center during the summer months.
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 - a. Photograph of the old Green Mountain Academy located in Underhill Center.
5. Photograph 2.1 – Photograph by Tim Durbrow
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 - a. Photograph of the C.V. Engine (#328), which derailed into the swamp adjacent to the Creek in 1910.
9. Photograph 5.1 – Photograph submitted by Tim Durbrow
 - a. Photograph of Arson Potvin, the Town's former Road Commissioner.
10. Photograph 6.1 – Photograph submitted by Tim Durbrow
 - a. Photograph of Earl Cross at a Gas Station
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 - a. **Background:** The Underhill-Jericho Fire Department built this 10,800 sq. ft. fire station in 1997 at 420 VT RT15 in Underhill and on July 13, 2013 the UJFD celebrated their 100th Anniversary of service to the communities of Underhill and Jericho. A heritage that we are all very proud of.
12. Photograph 7.1 – Photograph submitted by Tim Durbrow
 - a. Photograph of a couple in front their car and the travel trailer camper.
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 - a. Photograph of the Underhill ski bowl, formerly located along Stevensville Road.
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 - a. Photograph of the ski bowl ski patrol – from left to right: Scott Gilman, Bill Durbrow, Rye Johnson, Merrel Canady.
- 19. Appendix B – Section Page – Photograph by Todd Barker & Val Stori
 - a. Photograph of Mt. Mansfield in the winter months.
- 20. Appendix C Section Page – Photograph submitted by Tim Durbrow
 - a. Photograph of the North Underhill train station.
- 21. Appendix D Section Page – Photograph submitted by Tim Durbrow
 - a. Photograph of a train with gravel.
- 22. Appendix E Section Page – Photograph by Todd Barker & Val Stori
 - a. Photograph of Mt. Mansfield in the fall months.

The Underhill Planning Commission thanks Tim Durbrow for his photograph submissions. To view more of his photography, please visit <https://www.timdurbrowphotography.com/>.

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For more information regarding the maps provided within this Town Plan, please contact the Planning & Zoning Administrator or visit the Planning & Zoning Office at the Underhill Town Hall, 12 Pleasant Valley Road in Underhill, Vermont. Additional information is also available by visiting the Agency of Natural Resources Atlas: <http://anrmaps.vermont.gov/websites/anra5/>.

Purpose & Introduction



Photograph by Todd Barker & Val Stori



PURPOSE

A Town Plan is a Town's principal policy document and is meant to represent the community's vision for the future. The Town Plan is intended to build upon past planning efforts in an effort to manage growth; protect scenic, historic and natural resources; and maintain a vibrant community. Appointed by the Selectboard, the Underhill Planning Commission is responsible for preparing the Plan.

The authority to prepare and implement a Town Plan is granted by the State of Vermont to municipalities in accordance with Title 24 V.S.A., Chapter 117, § 4381. Vermont Statutes require municipal plans to include the following elements:

- Statement of Objectives, Policies and Programs
- Land Use
- Transportation
- Utilities and Public Facilities
- Natural Resources
- Education
- Energy
- Housing
- Economic Development
- Flood Resiliency
- Implementation Program

FUN FACT:

UNDERHILL'S FIRST TOWN PLAN (REFERRED TO AS A COMPREHENSIVE PLAN) WAS PREPARED BY THE PLANNING COMMISSION IN APRIL 1970.

The goals, policies and strategies, and future land uses established in this plan were arrived at through an extensive public outreach effort by the Planning Commission, which began with a community-wide survey conducted between the months of March 2019 and May 2019. Upon compiling and reviewing the survey results, the Planning Commission began crafting the goals, policies and strategies for each chapter within this Town Plan. That task was a seven month-long effort, culminating in ten separate chapters. As the chapters were produced, they were distributed to appropriate Boards, Commissions and Committees (including the Chittenden County Regional Planning Commission) for additional comment. Upon receiving comments from all the interested parties, those comments were synthesized into a draft Town Plan that was distributed for public dissemination in mid-February 2020. Public hearings hosted by the Planning Commission were conducted in late-March/early-April, followed by public hearings hosted by the Selectboard towards the end of May.

This Town Plan satisfies those elements, and establishes goals, policies and strategies that are intended to guide Underhill's future growth, which includes the development of land, public facilities, and services. At the same time, this Town Plan sought to establish goals that respect and maintain the Town's rural character, contributing to Underhill's unique sense of place.

SOCIAL EQUITY IN UNDERHILL

Underhill is committed to supporting a welcoming, equitable, diverse and inclusive society.

Vermont has fought for centuries for freedom, unity, equity, and openness. The Underhill Planning Commission recognizes our role is to plan for, and work towards, justice, equity, diversity and social inclusion.

The Underhill Planning Commission recognizes that land use planning and zoning has led to disparities and inequities in access to affordable housing, a livable income, healthcare, opportunity, mobility, and social services have existed across the country for generations. These inequities disproportionately affect people of color, including black, indigenous, people of color and those with different sexual orientations and different abilities. Underhill's Planning Commission intends to expand its knowledge on social equity issues to understand how town policies and practices may contribute to inequities. We will then review the town plan to identify where and how

we can make improvements. During the town plan review, we intend to prioritize the following chapters for review: a) land use, b) energy and c) transportation.

The Town's well-being depends on acknowledging and welcoming diversity. A diverse community is represented by different age groups, races, ethnicities, income levels, and genders. In addition, Underhill recognizes that it sits on the ancestral lands of the Abenaki, the original inhabitants of this area, and seeks to respect and protect indigenous knowledge, traditions, and cultural artifacts in the area.

We hope you will remain engaged as we undertake this meaningful work. We welcome public participation as we work to diversify our commission and plan for equity. This will be an iterative process and we expect to evolve our thinking and our work as we gain more knowledge from varied perspectives.

HISTORY OF UNDERHILL

The Town of Underhill was originally formed when Benning Wentworth, governor of New Hampshire, granted the land to a group of speculators. The Town was officially chartered on June 8, 1765 upon payment of \$230.40. The Town was originally 36 square miles; however, an additional 12 square miles were subsequently conveyed when the Town of Mansfield dissolved in 1848. Prior to 1848, the Town of Mansfield straddled Mt. Mansfield, with the majority of residents living on the eastern side of the mountain (what is now considered the Town of Stowe).¹ In order to access the west side of Mansfield from the east side, or vice versa, traveling through Smugglers Notch, which is geographically north of the summit, or through the Nebraska Notch, which is geographically south of the summit, was required.² As a result, the geographical and topographic issues revolving around Mt. Mansfield led to the Town of Mansfield's dissolution, causing the lands east of Mt. Mansfield to be annexed to the Town of Stowe, and the lands north of Mt. Mansfield to be annexed to the Town of Cambridge, while the lands west of Mt. Mansfield were annexed to Underhill.³

In September, 1785, the proprietors held their first official meeting in Dorset, Vermont, and in 1786, the first settlers came to Town –shortly after the Revolutionary War which resulted in a number of war veterans settling in the Town. Upon settling, the first schoolhouse was built in 1787, which was shortly before the State of Vermont was admitted in the Union in 1791. In the mid-1800s, Underhill furnished 157 men to service the Union in the civil war, and the Burlington and Lamoille Railroad opened in 1877. Underhill's golden age is probably most associated with the 1950s to 1970s, when the community transformed from a farming and lumbering community to a community that offered many services. Commercial and industrial establishments located in Town included: a drug store, feed and grain store, sawmills, starch factories, grocery stores, a movie theater, a railroad station, a bus stop, inns, a blacksmith shop, a hardware store, a doctor's office, gas stations, churches, schools, and a small ski area. The majority of these businesses have since closed, and currently the Town more or less serves as a bedroom community to Burlington.

Geographically, the Town of Underhill is located in Chittenden County, which is in the northwest portion of Vermont. The Town is situated between the Champlain Valley to the west and the Green Mountains to the east, laying on the slopes of the State's tallest peak – Mt. Mansfield – and including its summit. Due to the Town's close proximity to the Green Mountains, the landscape has greatly influenced local patterns of human activity, settlement and commerce.

Settlement within Underhill first centered around the most reliable power source at the time – the Brown's River and its many tributaries. The Town's agricultural base, which once extended into the surrounding hills, is largely confined to more productive soils, which are found along the River Road in the river valley. Outside of the Brown's River area and the river valley, the remaining lands in Underhill are less suitable (and less desirable) for development, as the lands are best characterized as remote and rocky uplands. However, these remote and rocky

¹ <https://vtdigger.org/2018/01/21/then-again-the-town-mount-mansfield-divided/>

² <https://vtdigger.org/2018/01/21/then-again-the-town-mount-mansfield-divided/>

³ <https://vtdigger.org/2018/01/21/then-again-the-town-mount-mansfield-divided/>

uplands form an aesthetically pleasing backdrop and provide for productive forest lands, headwaters and important wildlife habitats. As a result, these uplands are intertwined with Town residents' quality of life and vision of protecting the Town's rural character and natural resources.

COMPATIBILITY WITH ADJACENT MUNICIPALITIES

The Town of Underhill shares a border with six towns: Bolton, Cambridge, Essex, Jericho, Stowe and Westford. The towns of Bolton, Essex, Jericho and Westford are located in Chittenden County, while Cambridge and Stowe are located in Lamoille County. Notably, while Essex "shares" a border with the Town of Underhill, the two Towns meet at a corner, and therefore, the boundary shared between the Towns is insignificant. The goals, policies and strategies set out in this Town Plan are compatible with those of its neighbors: focusing development in traditional rural village centers, supporting and encourage the protection of natural resources, and maintaining a high quality of life for all residents.

Stowe, the co-owner of Mt. Mansfield, is a national tourist destination, as its ski resort and numerous attractions are one of the most popular on the eastern seaboard. The topography between Underhill and Stowe creates a physical barrier that distinguishes the two communities economically, socially and politically. Similarly, while Bolton shares many of the same rural characteristics as Underhill, the two communities share the same barriers as Underhill and Stowe, and in addition, Underhill and Bolton are separated by a large piece of federally owned land – the Ethan Allen Firing Range.

Bolton, like Stowe, is separated from Underhill by Mt. Mansfield State Forest, as well as the Ethan Allen Firing Range. While Underhill shares its border with Bolton and Stowe, these physical barriers make planning with one another moot. In contrast, Underhill, Cambridge and Westford share very similar characteristics. All three towns are largely residential with few commercial establishments and an abundance of natural resources. While Underhill doesn't connect with Bolton as it does with Cambridge and Westford, all four Towns are interconnected by large tracts of mountainous forest containing numerous wetlands and bodies of water. Natural resource planning should be compatible with one another; however, development interaction between these Town should be limited since these four Town do not require coordinated development planning.

The Town of Jericho is the most influential municipality relative to planning in the Town of Underhill. The two towns share a village– the Underhill Flats/Riverside center, which also contains a village designation from the Vermont Department of Housing and Community Development – as well as share municipal services, such as the Underhill-Jericho Fire Department, Jericho-Underhill Water District, and the Deborah Rawson Library. As a result, communication between the two communities is essential in order to provide these services to their residents. Underhill and Jericho periodically discuss planning issues primarily focused on the shared village of Underhill Flats/Riverside. To note, Jericho has recently approved form-based zoning regulations for the Riverside village area, which were implemented in order to guide the Town with the approval of mixed-used development, and at the same time ensure that new development conforms to certain design review standards. While Underhill is seeking to promote mixed-used development in the Underhill Flats portion of the village area, the Town is not desiring to implement any design review standards. The two Towns intend to continue these discussions to achieve the goal of promoting mixed-use development in the area, but at the same time, achieve mutual satisfaction of the two communities' differing goals pertaining to design review standards.

The Town of Underhill, as an active member of the Chittenden County Regional Planning Commission (CCRPC), continually works with its neighboring communities and counties to coordinate planning goals and strategies that are compatible with the regional Environment, Community, Opportunity, and Sustainability (ECOS) Plan. CCRPC sets a regional context for planning, as well as provides expertise to individual Towns like Underhill.

Chapter 1

Photograph 1.1 – Submitted by Tim Durbrow



Land Use

- GOAL 1:** Promote land use that ensures the viability of agricultural, forest, and outdoor recreation economies; protects significant natural resources; respects the Town’s scenic attributes; maintains the Town’s rural character; and reinforces the compact settlement pattern of the Town’s two villages.
- GOAL 2:** Explore alternatives to Underhill’s existing zoning regulations that will accommodate multi-family housing, small businesses, and the Town’s new housing goals, while protecting our significant natural resources.
- GOAL 3:** Update the official zoning map of Underhill.
-

POLICY 1: Encourage mixed-use buildings, rehabilitation projects and conversions of existing development in the village centers.

Strategies:

1. Continue to encourage “smart growth principles.”⁴
 2. Provide information to village center landowners pertaining to the Village Center Designation Program administered by the Vermont Department of Housing & Community Development.
 3. Investigate the feasibility of implementing and/or extending public & private water supply and wastewater treatment systems in the village centers.
 4. Review and update, where appropriate, the allowed uses in the Underhill Flats Village Center and Underhill Center Village zoning districts.
 5. Continually review, and update where appropriate, the zoning regulations to make them more “user-friendly.”
-

POLICY 2: Regulate development outside the village centers to respect the Town’s rural character, scenic attributes, natural resources, and agricultural, forest and outdoor recreational economies.

Strategies:

1. Review the terms and conditions of the Town’s land contracts.
 2. Examine whether the Town’s land contracts are an effective way to achieve Town goals.
 3. Research and develop zoning related approaches that protect the rural and scenic character and maintain open space.
 4. Explore possible options for the clustering of development.
 5. Review and update, where appropriate, the allowed uses in each zoning district outside of the Town’s village centers.
 6. Continually review, and update, where appropriate, the zoning regulations to make them more “user-friendly.”
-

POLICY 3: Provide clarity and precision of zoning district boundaries to prevent issues resulting from uncertainties with the current zoning map.

Strategies:

1. Re-examine the future land use map and amend where appropriate.
2. Research the feasibility of adjusting zoning district boundaries to follow features, which include, but are not limited to, property boundary lines, roads or significant waterways.
3. Apply for grants to assist in evaluating potential options that help resolve the existing zoning map issues.
4. Seek public input on proposed amendments to the zoning map.

⁴ <https://vnrc.org/smart-growth/smart-growth-principles/>

BACKGROUND

Land use planning is essential to help a community grow and develop in a desired manner. In Underhill, the longstanding sentiment has been to provide for development that preserves the rural character of the Town. This desired sentiment is achieved in Underhill by encouraging denser, compact development, as well as economic opportunities, in the traditional village centers – Underhill Flats and Underhill Center. At the same time, this type of development is discouraged outside the village centers in order to encourage agriculture, silviculture, recreation, appropriate commercial developments, and conservation subdivision designs. Additionally, by encouraging denser, compact development in the traditional village centers, areas outside of the centers can assist in the protection of wildlife and significant wildlife habitats, sequestration of carbon, avoidance of sprawl, and the maintenance of the Town’s rural heritage and familiar quality of life.

EXISTING LAND USE

Existing land use (see Map 1.1) characterizes current uses and development patterns in the Town. In Underhill, residential, forest (identified as “Tree Canopy on Map 1.1), and agricultural uses comprise the majority of the land area. However, as discussed below, the Planning Commission should explore its future land use map for the reasons stated therein.



ZONING

Historic & Existing Zoning

To appreciate Underhill’s current zoning, understanding the process the Town used, and the context the Town considered, to develop its original zoning map is essential.

Underhill’s zoning districts were established in 1972 & 1973 and were largely a reflection of the Town’s proposed land use map at that time. The zoning districts established at that time were:

- The Residential District, which has since been renamed the **Underhill Flats Village Center District**;
- The Rural Residential and Agricultural District, which has since been renamed the **Rural Residential District**;
- The **Water Conservation District**;
- The **Mt. Mansfield Scenic Preservation District**; and
- The **Soil and Water Conservation District**.

These zoning districts were formed by considering soil type, topography, slope, and the presence of surface waters (e.g. rivers, streams and brooks). When drafting the initial zoning map, the Planning Commission did not define precise zoning districts. If confusion emerged as to where the zoning district boundary was, landowners were to consult the soils map at Town Hall.⁵ In response to this uncertainty, in 1985, the Planning Commission amended the official zoning map to provide more specificity by including measurements from existing features, such as roads and streams. This 1985 map is essentially the zoning map the Town has today with one minor revision in 2018. This revision involved the creation of a new zoning district involving Underhill Center, which provided residents in the newly created zoning district (called the **Underhill Center Village District**) relief from the overly restrictive requirements of the Water Conservation District. Map 1.2 consists of the 1985 zoning map with an inset of the 2018 zoning map amendment, while Map 1.3 is a “best interpretation” of the 1985 zoning map with the 2018 zoning map amendment incorporated therein.

⁵ October 3, 1972 Planning Commission Minutes

Underhill Flats Village Center District and Underhill Center Village District

The Underhill Flats Village Center District (Underhill Flats) and Underhill Center Village District (Underhill Center) are two standalone districts that are rooted in the Town's traditional historic centers. Throughout the mid-1900s, these two areas were robust commercial centers surrounded by compact residential development. As the 20th century came to end, many of the commercial establishments in the two village centers ceased to exist.



The purpose of the Underhill Flats Village Center District is to encourage small-scale commercial use, public uses, and denser residential uses. Furthermore, the district promotes development that is consistent with the existing compact, historic development pattern. Unlike the other zoning districts, the Underhill Flats Village Center District is less restrictive, as the District contains a one-acre minimum lot size requirement, shorter setback requirements, and allows for a range of different uses. In an effort to ease the administrative and development obstacles for this district, there are less-restrictive dimensional requirements due to the historic nature of the area, as a number of lots within the district continue to be nonconforming.

The Underhill Center Village District closely resembles the Underhill Flats Village Center District in regard to intent and purpose. Specifically, the Underhill Center Village zoning district was created in 2018 to address the limitations imposed by the Water Conservation District's dimensional standards, thereby allowing landowners within the new district to proceed with ordinary development projects without having to obtain approval from the Development Review Board. The purpose of this zoning district mirrors that of the Underhill Flats Village Center District: to recapture the once vibrant village community by encouraging small-scale commercial use, public uses, and denser residential uses. Furthermore, this district promotes development that is consistent with the existing compact, historic development pattern. The Underhill Center Village District has a one and ½ acre minimum lot size requirement, shorter setback requirements, and allows for a range of different uses. Similar to the Underhill Flats Village Center District, these less-restrictive dimensional requirements are necessary due to the historic nature of the area and the number of lots that remain nonconforming, even with the implementation of the smaller acreage requirement in the new zoning district, which oftentimes result in development obstacles.

Both village center zoning districts are similar regarding development allowed, uses, their intended purposes, as well as are distinct areas from the surrounding areas. Both the Underhill Flats and Underhill Center Districts contain numerous single- and multi-family dwellings, some commercial establishments, and public facilities. Furthermore, these districts are areas where the Town encourages greater density, more development, and small-scale economic activities. These uses should be integrated into the existing community by conforming with, and being context-sensitive to, the neighborhood, as determined by the district's boundaries. With the promotion of these context-sensitive uses, the Town hopes to establish gathering places, services, workspaces, and recreational spaces in a compact, safe, walkable community, while at the same time respecting environmental constraints.

Rural Residential

The Rural Residential zoning district, previously known as the Rural Residential & Agricultural District, includes areas in Town not located in the other zoning districts. During the map's creation, this district emerged last, as it was comprised of areas where no significant environmental constraints inhibit development. With this sentiment in mind, the Rural Residential District was identified as a district where residential development on medium sized lots would be encouraged. Therefore, a three-acre lot size requirement was selected, which is notably larger than the minimum lot size in the two village centers. On the other hand, the acreage requirement of this district is notably smaller than the Mt. Mansfield Scenic Preservation District and Soil & Water Conservation District, where lower density development is encouraged due to environmental or aesthetic constraints.

The Rural Residential District is largely located along the Vermont Route 15, Poker Hill Road and Irish Settlement Road corridors. As alluded to above, the purpose of the Rural Residential zoning district is to allow medium density development – more specifically, single-family and two-family dwellings on medium sized lots. Preserving the rural character of the Town continues to be an important consideration in this district; however, the Town recognizes the need to have medium density development outside of the centers in order to allow the Town’s population to grow. In addition, relative to Underhill, these medium-sized lots allow for greater density in areas more suited for development. These three-acre lots are not quite large enough to achieve the goal of significantly preserving the surrounding natural resources, which is an essential contributing factor to the Town’s rural character; therefore, the Town should consider development options to maintain resources like wildlife connectivity and forest blocks in new subdivisions.



Appropriate commercial uses are allowed within the Rural Resident District, which is consistent with the principally residential nature of the district. The businesses that currently exist in the district either predate zoning or are best categorized as a home industry use, which is a less intrusive use due to the associated residential component of the property.

Water Conservation District

The Water Conservation zoning district was created to protect the underground aquifer and groundwater recharge area that serves Underhill Center. Many landowners in this district, particularly in Underhill Center, had shallow wells when the district was created. The high-water table in the Underhill Center Area makes these wells susceptible to contamination. The large lot size requirement associated with this district dictated at its creation were intended to minimize adverse impacts to these shallow wells. The Water Conservation District is located along River Road, Sand Hill Road, Beartown Road, Maple Leaf Road, a small portion of Mountain Road and Pleasant Valley Road, and essentially surrounding the Underhill Center Village District.

The purpose and intent of the Water Conservation District is very similar to that of the Rural Residential District – to encourage medium density development, and preserve the rural character of the Town, with the added purpose of protecting the underground aquifer and groundwater recharge area. While the five-acre lot size requirement is slightly larger than the three-acre lot size requirement of the Rural Residential District, the requirement still permits medium density development adjacent to the village centers, thus allowing the Town’s denser village center, and the surrounding area to grow. Moreover, the medium-sized lots allow for greater density in areas of the district more suited for development, while still attaining the goal of protecting the underground aquifer and groundwater recharge area, as well as preserving the surrounding natural resources. Notably, since the inception of the Water Conservation District in the 1970s, many landowners in the Water Conservation District and Underhill Center Village have migrated towards the installation of drilled wells, which provide more protections from groundwater contaminants. To help protect the underlying aquifer further, grouted bedrocks wells are encouraged to help ensure safe water supplies.

Similar to the Rural Residential District, the Water Conservation District largely encourages single-family and two-family dwellings on medium-sized lots; however, commercial uses are allowed, though they should be appropriate for residential areas. Businesses that currently exist in the district either predate zoning or are better categorized as home industry uses, which is a less intrusive use due to the associated residential component of the property.

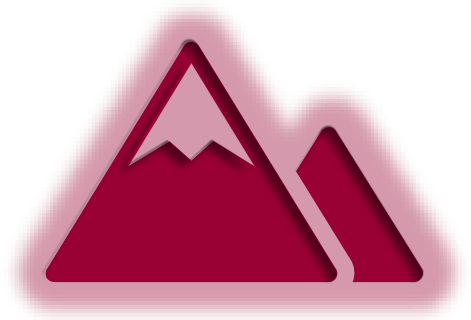
Mt. Mansfield Scenic Preservation District

The Mt. Mansfield Scenic Preservation zoning district (also known as the Scenic Preservation District) is located along Pleasant Valley Road with the intent of preserving the aesthetic quality and scenic vistas of the Mt. Mansfield view shed, while maintaining the rural character of the Pleasant Valley Road corridor and promoting low density

development. To achieve that goal, the creators of the zoning map developed an entirely separate zoning district, which implemented larger lot size requirements – 10 acres, as well as greater setback requirements. Additionally, this zoning district requires larger dimensional frontage requirements from the preceding zoning district to prevent landowners from constructing residences in close proximity to one another, as well as to prevent “spaghetti lots.”

The district is directed at encouraging low density residential development, specifically one-family and two-family dwellings in a low impact, less concentrated development pattern; however, commercial uses are allowed within the zoning district. As with the Rural Residential and Water Conservation Districts, commercial uses should be appropriate for residential areas. Businesses that currently exist in this district either predate zoning or are better categorized as a home industry use.

The purpose of the Scenic Preservation district is to protect scenic vistas through the implementation of larger lot sizes, setback requirements and frontage requirements. While this District’s primary focus pertains to scenic vistas, many of the area’s forestland indirectly benefited from the District’s ten-acre lot size requirements. As a result, the Scenic Preservation District serves to explicitly protect the scenic vistas and implicitly protect the area’s natural resources, which contains Seymour River and its tributaries, wet areas, wildlife corridors, etc. Keeping in mind the intentions and effects of the District’s current characteristics, an appropriate measure the Planning Commission could consider is researching whether modifications to the district can be made that better captures this district’s goal of protecting scenic vistas, or to the expand the goals of the district to better encapsulate the indirect protections. If deemed appropriate, this may be accomplished by, among other methods, changing the title of the district to the “Scenic and Forest District,” while also updating the District’s purpose; introducing a well-evaluated overlay district; or the implementation of other creative methods that will help attain the goals of this District. Further consideration to amendments to the regulations regarding this district to help inhibit forest fragmentation could also be explored.



Soil & Water Conservation District

The Soil & Water Conservation District identifies areas that were considered remote, inaccessible, and not suitable for development. The district is located down the spine of the geographic center of Town – between Poker Hill Road and Irish Settlement Road, as well as the eastern side of Town, which contains land largely owned by the State (Underhill State Park and Mt. Mansfield State Forest) and federal government (Ethan Allen Firing Range). After reviewing the soil maps and topography, the creators of the zoning map found these areas not suitable for dense development, as they are susceptible to undue environmental disturbance of the aquifer and groundwater recharge areas, steep slopes, and thin soils. The creators intended to protect the aforementioned environmental characteristic, and at the same time, allow for the continuation of traditional uses such as single-family residences, forestry, outdoor recreation, and other related uses.

To ensure that this district would not be overdeveloped, the district was assigned a 15-acre minimum lot size with large setback requirements and large frontage requirements. In addition, a large portion of land in the Soil & Water Conservation District is above 1500 ft. in elevation (FIE), where, as discussed in the Natural Resources chapter of this Plan (see Chapter 2), new development or modifications made to existing structures are prohibited.

The Soil & Water Conservation District presents zoning enforcement complications. This district contains pockets on the western part of Town entirely surrounded by the Rural Residential District. Improvements in technology and understanding provide an opportunity to reexamine the rationale for these zoning designations, particularly in the western part of Underhill. Since the early 1970’s, information, technology and permitting requirements have either significantly improved or evolved, providing us with a better understanding of how development impacts the environment, as well as where development is more or less feasible in this district while still protecting the environment. Some examples of these evolutions include: improved and simplified resource identification and

mapping and greater permitting requirements for septic systems, potable water supply systems, and stormwater impact. Improvements in knowledge and technology could change some of the restrictions in this district.

Moreover, this zoning district contains a similar issue to the Mt. Mansfield Scenic Preservation District - the district seeks to achieve the protection of a sensitive environmental area with the implementation of larger lot sizes, setback requirements and frontage requirements; however, these standards have the potential to contribute to adverse effects on natural resources such as forest fragmentation, grading of land to satisfy the Town's regulations (e.g. grading land during road construction), etc. As a result, the Planning Commission should re-examine if other zoning-related opportunities exist to achieve the goals sought by this district.

Special Flood Hazard District

The Town of Underhill has incorporated "Flood Hazard Area Regulations" directly into the *Unified Land Use & Development Regulations*, which meet the requirements for community participation in the National Flood Insurance Program (NFIP). Participation in this federal program enables landowners within the floodplain to obtain private flood insurance. The Flood Hazard Area Regulations, established based on federal standards, provide, among other things, for:

- Regulating structures and/or development in a floodplain and floodway;
- Regulating storage of materials in a floodplain/floodway; and
- Establishing procedures that the Town and floodplain landowners must follow should residents want to further develop in a floodplain.

The Town allows new structures in the floodplain as a conditional use; while this meets minimum NFIP standards, it does not meet the State's parameters for the highest level of financial assistance from the State following a natural disaster. As the Town's Flood Hazard Area Regulations become more restrictive, the financial assistance received from the State through the State's Emergency Relief and Assistance Fund (ERAF) program when damages result from a major flood or other natural disaster, is increased (see Natural Resources Chapter for more information).

In regard to the district itself, the Town's official "Flood Hazard Overlay District" is identified as the "Open Space/Floodplain Overlay" district on the official 1985 zoning map, as amended in 2018. The identified district's name implies that floodplains are to remain open space; however, in practice, the Town allows development within floodplains so long as it conforms with the Flood Hazard Area Regulations. In addition, the Town's official map depicts floodplains that were mapped in the 1980's, but in practice, the Town utilizes the current Digital Flood Insurance Rate Maps (FIRM) provided by the Federal Emergency Management Agency (FEMA) because they provide clear boundaries. Going forward, the Town should address these inconsistencies when it is reviewing the zoning map, as discussed below.



River Corridor Areas (RC)

The State of Vermont has mapped "River Corridor" areas, which are those areas that are especially vulnerable to stream erosion. While a River Corridor area may coincide with a special flood hazard district (SFHA), the purpose for each program is distinctly different. Where the SFHA regulations serve to protect structures and prevent loss of property from flooding, the River Corridor program is designed to protect land area next to streams that are necessary for the stream channel to migrate, modify and adjust.

The State has produced a statewide River Corridor map, which has incorporated fluvial erosion hazard data and studies. The fluvial erosion hazard studies were done in two phases: Phase 1, which was a computer based, remote assessment, and Phase 2, which was data obtained through field analysis. To note, the Phase 2 studies were chosen based on a risk analysis assessment of the Phase 1 data. In reviewing the River Corridor map, the Town's 100 ft.

setback requirement from named streams that contain Special Flood Hazard Areas meets or exceeds the River Corridor requirements with respect to most of the Town's smaller streams and a good portion of the Brown's River. However, the analysis also showed that the River Corridor of the Brown's River immediately to the south of River Road and into Stevensville exceeds both the municipal setback requirement and the FEMA's identification of the 100-year floodplain.

Should the Town consider implementation of River Corridor regulations, there are model bylaws that can be utilized as a starting point, as they provide valuable language to address standards related to a River Corridor. Overall, the purpose of the River Corridor regulations and overlay district would be the following:

- Protect mapped river and stream corridors that are highly vulnerable to erosion due to naturally occurring stream channel migration, modification and adjustment;
- Limit new development as necessary within River Corridors to protect public safety and welfare, and to minimize property damage and loss due to bank erosion and failure; and
- Allow rivers and streams to maintain or reestablish their natural condition and flow, thereby avoiding the need for costly, and environmentally degrading, stream channelization and bank stabilization measures.

Additionally, the Town should review whether the proposed River Corridor area overlaps with other areas that may already be protected by existing regulations. Also, public education and outreach are very important prior to any pursuit of implementing this potential overlay district.

Applicability

While original zoning district boundaries were drawn to respond to issues of that time period, current day challenges emerge when applying those boundaries, in addition to the lack of precision that still exists within the official zoning map. First, the configuration of the zoning districts oftentimes interferes with the ability to efficiently and effectively subdivide. For example, a large number of properties in Town are within both the Rural Residential zoning district and the Soil & Water Conservation zoning district. While containing multiple zoning districts in the Town is commonplace, these two particular zoning districts have a minimum acreage requirement of 3 acres and 15 acres, respectively. In the scenario outlined above, satisfying the acreage requirement for a two-lot subdivision can be challenging in itself as 18 acres at a minimum is required to subdivide.⁶ Similarly, proposed development (i.e. buildings) can also be adversely affected when a lot contains two zoning districts, as two different setback standards could apply. Should a nonconforming lot be involved, the analysis is further complicated.

In addition to the complications that result from the zoning map when a parcel is in more than one district, a related issue pertains to the map's interpretation, specifically the inaccuracies and ambiguities that exist throughout the map. The Town's official zoning map is hand-drawn and not to scale, as well as missing numerous measurements that would help ascertain the precise location of zoning districts in various areas. Since the hand-drawn map does not contain any parcels, coupled with the inaccuracies outlined above, determining the precise zoning district as it applies to a specific lot can be challenging. To help combat this difficulty, a "best interpretation zoning map" as it applies to properties in Underhill was developed and is largely relied upon by staff and the general public. Even with this "best interpretation zoning map," due to the scaling issue, some of the imperfections from the official zoning map have been carried over to the "best interpretation zoning map," and therefore, in actuality, there is no true accurate zoning map that can be relied upon. As discussed below, and reflected in the

⁶ When subdividing a parcel of land, if a property is in multiple zoning districts, each new lot needs to meet minimum requirements for each zoning district in which the lot will be located. Therefore, if a lot is located in the Rural Residential District (3-acre minimum lot size) and the Soil & Water Conservation District (15-acre minimum lot size), if a lot is subdivided into two lots, one of the lots will inevitably be in the Soil & Water Conservation District, and therefore, must be at least 15 acres upon subdividing. The other lot will need to be entirely within the Rural Residential District, assuming the "parent lot" is under 30 acres. Therefore, to proceed with a two-lot subdivision of land for an existing lot in the Rural Residential District and Soil & Water Conservation District, it must be more than 18 acres (15 acres for Lot 1 + 3 acres for Lot 2).

strategies above, the Planning Commission intends to review the zoning map in an effort to resolve these interpretation and applicability issues.

FUTURE LAND USE

Evaluating existing land use patterns is important in order to project and facilitate future growth within the Town (future land use). Developing a future land use plan enables the coordination of public and private development decisions within the Town. Due to the interrelatedness between Underhill's existing land use and its zoning districts, the development of a traditional future land use plan has not been pursued in quite some time, ultimately resulting in the future land use map being a reflection of the Town's zoning districts. While this plan proposes a future land use map that largely reflects the zoning districts, the Planning Commission intends to re-examine this map and amend where appropriate, which may contribute to the resolution of some of the zoning-related issues discussed directly above.

The future land use maps included with past plans have largely been a reflection of the Town's zoning districts, thus not providing the guidance the map is meant to provide to the Town. The future land use plan herein (see Map 1.4) is largely a reflection of the existing land use (Map 1.1), and therefore, the Planning Commission should re-examine and amend the map where appropriate, as potential amendments may contribute to the resolution of some of the issues discussed above.

The future land use map contains the following land uses, which are strongly connected to the underlying zoning districts:

Traditional Village Centers

The Underhill Flats and Underhill Center Village Centers comprise the "traditional village center" land use category. Currently, these areas consist of dense residential development; however, mixed-use and small-scale commercial development is encouraged. To help promote mixed-use development within the centers, Underhill collaborated with the Town of Jericho and obtained a village center designation for the Underhill Flats/Riverside area from the Vermont Department of Housing & Community Development in 2010. In 2017, Underhill Center also obtained village designation status. Landowners within the boundaries of the village designation areas are eligible to apply for financial assistance from the Vermont Department of Housing & Community Development should they pursue an endeavor involving mixed-use development, commercial development or multi-family dwellings that are for rental purposes.⁷



Photograph 1.2 – Green Mountain Academy

Photograph Submitted by Underhill Planning Commission

Rural Residential

The Rural Residential land use category is comprised entirely of Rural Residential zoning district. These lands are meant to be used for residential purposes/low impact development on medium sized lots. This land use category allows the Town to maintain its rural character, while at the same time, allowing for

⁷ <https://accd.vermont.gov/sites/accdnew/files/documents/CD/CPR/CPR-VC-Designation-Benefits.pdf>.

greater density outside of the traditional village centers, permitting the Town’s population to grow.

Water Conservation

The Water Conservation land use category is comprised entirely of the Water Conservation zoning district. The land within this category is meant to be utilized for residential uses/low impact development on medium sized lots, but with the added consideration of protecting and conserving the underground aquifer and groundwater recharge area that stretches from Underhill Flats Center Village to beyond Underhill Center. This land use category both promotes the Town’s goal of maintaining its rural character, and allows for greater density in the areas around the two traditional village centers.

Scenic Preservation

The Scenic Preservation land use category is comprised entirely of the Mt. Mansfield Scenic Preservation zoning district. The lands within this land use category are to be preserved in a way that protects the scenic vistas of Mt. Mansfield, but also allows for their use for residential purposes and low impact development on large lots.

Soil & Water Conservation

The Soil & Water Conservation land use category is comprised entirely of the Soil & Water Conservation zoning district. The lands within this land use category are largely associated with large areas of open space and/or forests that are not suitable for development. These remote and inaccessible areas, are typically meant to be conserved; however, where feasible, residential uses on large lot sizes, and low impact development related to agricultural, silvicultural and outdoor recreational purposes, are permissible.

As the Planning Commission re-examines the future land use map, they should consider retaining the “Traditional Village Center” land use category (described above), as well as consider the following land use categories as potential options, noting that these land use categories were previously used in the 2015 Town Plan.

Residential Lands

Should the Planning Commission consider this category as a possible land use classification, Residential Lands would be those areas that contain private housing, primarily single-family dwellings with some accessory dwellings. The current zoning regulations permit single-family dwellings and two-family dwellings in all zoning districts. Some commercial operations currently exist within the areas that would comprise this land use category; however, new commercial operations may still be subject to conditional use, thus requiring review by the Development Review Board.

Open/Agricultural Lands

Should the Planning Commission consider this category as a possible land use classification, Open/Agricultural lands would consist of those areas where land is undeveloped or used for agricultural, silvicultural, or recreational purposes. Mount Mansfield State Forest (~ 7,141 acres), which includes Underhill State Park as well as Mt. Mansfield, Vermont’s highest peak, and the federally owned Ethan Allen Training Facility (~3,711 acres) would comprise a large portion of the open space towards the eastern part of Town. The Town of Underhill also prohibits any development above 1500 ft. elevation, thereby protecting Town ridgelines from development. Additionally, many Town landowners that have land in this land use category have entered into either Town land contracts or Vermont State current use contracts (formally known as “use value appraisal contracts”), both of which discourage development and subdivisions of land.

While open space is not formally a future land category incorporated within the future land use map in this plan, the numerous agricultural and silvicultural operations contribute to preserving open space within Town. Many of the larger agricultural operations are along River Road, while smaller agricultural operations and silvicultural operations are scattered throughout Town. These silvicultural operations include maple sugaring and logging.

Lastly, the Town owns parcels of land throughout, which also serve as a mechanism to preserve open land. More specifically, the Town owns land along Crane Brook, which has been designated as the Crane Brook Conservation District.

Future Zoning

Proposed amendments to the Town's zoning map have always been controversial, largely because of the assumption that the original rationale for specific zoning boundaries remains applicable. While environmental constraints strongly influenced the boundaries of the zoning districts, these constraints were relevant to the understanding and technology of the early 1970s. Since the 1970s, technological advancements have been considerable and address many of the concerns responsible for the creation of districts in the original zoning map. In addition, today there is much greater scrutiny by the State of Vermont and the Town of Underhill relative to environmental impacts – reflected in the permits that are required prior to commencing any development.

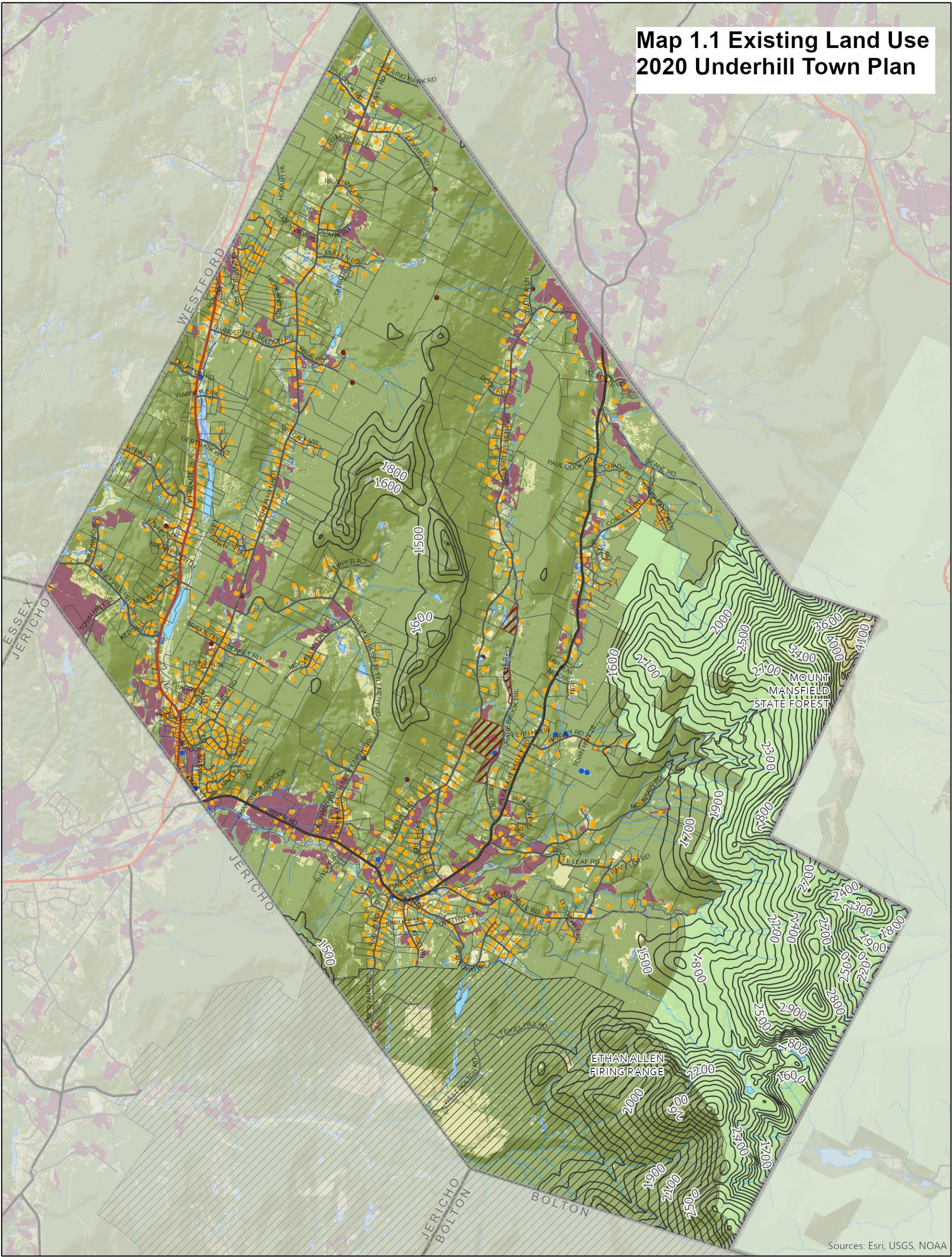
Therefore, in order to attain the numerous goals set forth in this Plan, as well as to address the inevitable developmental pressures from the greater Burlington area, the Town will need to reexamine the current zoning map. Identifying solutions that resolve the issues associated with the zoning map will be a challenging endeavor, and to date, the Planning Commission has only discussed generalities as it relates to the map, with no clear path forward. To assist with potential solutions, the Town should seek grant opportunities to assess its options.

When reexamining the zoning map, the Town should explore the following options:

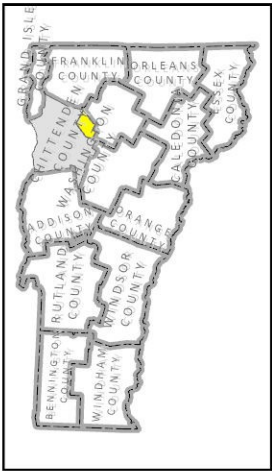
- Realigning and/or reconfigure existing zoning district boundaries with more permanent fixtures, such as roads, streams, and property lines to provide more clarity to the existing zoning districts and better achieve the goals of this plan; or
- With detailed research and assistance, implement new zoning districts that may better achieve the goals of this plan.

Ultimately, the implementation of the aforementioned option may not come to fruition; however, discussion of these changes are warranted given the numerous development and subdivision applications that are adversely affected due to the subject lot being subject to multiple zoning districts oftentimes without ascertainable boundaries.

Map 1.1 Existing Land Use
2020 Underhill Town Plan



Sources: Esri, USGS, NOAA



- Legend**
- Existing Land Use (based on e911 site type)**
- Commerical Farm or Sugarhouse
 - Government, Commercial or Non-Residential
 - Residential
 - Crane Brook Conservation District
 - Ethan Allen Firing Range
- 2016 Land Cover**
- Tree Canopy
 - Grass/Scrub
 - Bare Soil
 - Water
 - Building
 - Road and Other Paved Surfaces
 - Agriculture
- Road Centerline**
- State Highway
 - Town Highway Class 2
 - Town Highway Class 3
 - Town Highway Class 4
- 2017 Tax Parcel Boundary**
- Land over 1,500 Elevation**
- State Land**

0 0.5 1 Mile








Source: Road Centerline - E911, 2019; Surface Water - VHD, Land Cover 2016, VCGI; Map created by M. Needle using ArcGIS Pro. All data is in State Plane Coordinate System, NAD 1983.

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.

Map 1.2 - Official Zoning Map

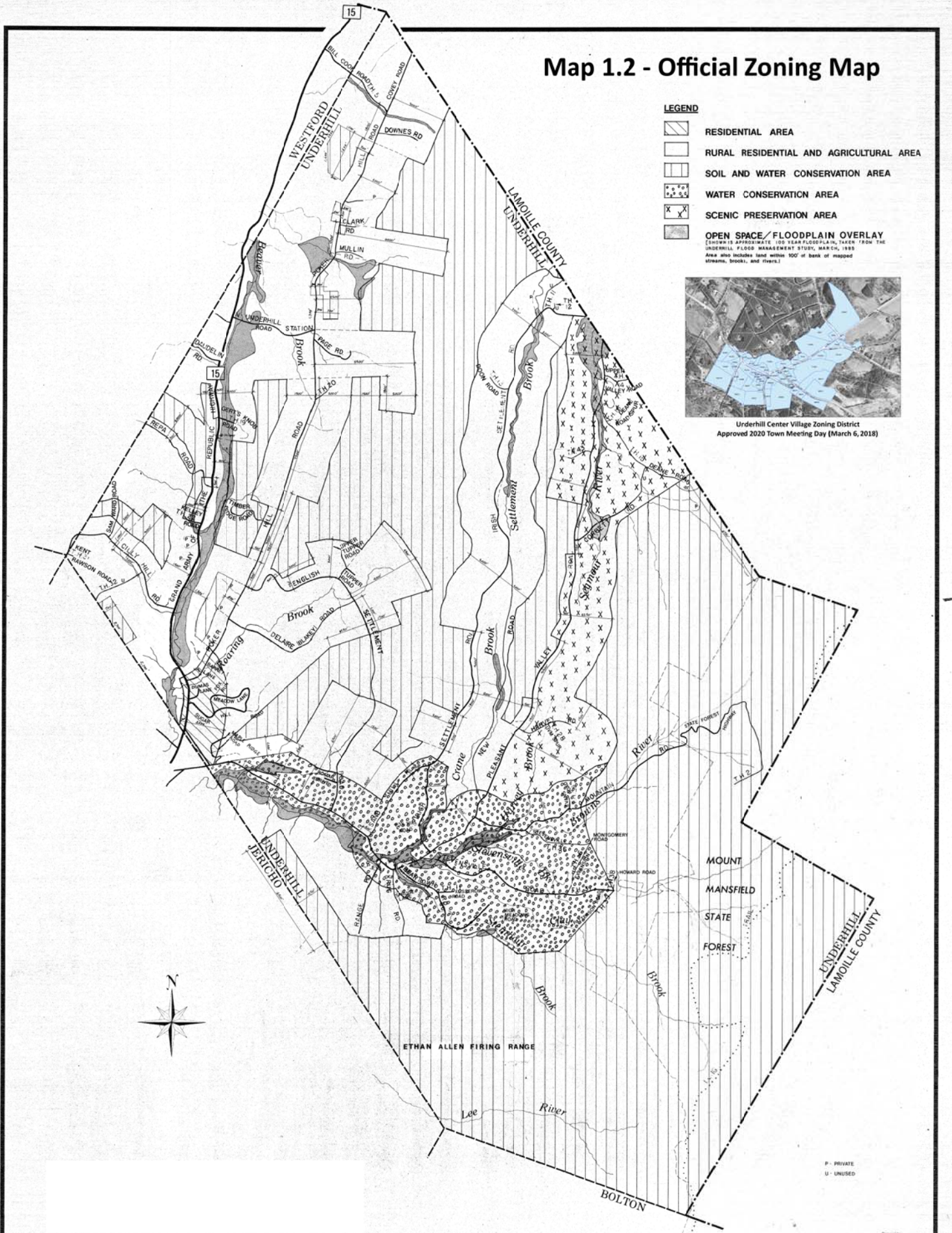
LEGEND

-  RESIDENTIAL AREA
-  RURAL RESIDENTIAL AND AGRICULTURAL AREA
-  SOIL AND WATER CONSERVATION AREA
-  WATER CONSERVATION AREA
-  SCENIC PRESERVATION AREA

OPEN SPACE/FLOODPLAIN OVERLAY
(SHOWN IS APPROXIMATE 100 YEAR FLOODPLAIN, DATA FROM THE UNDERHILL FLOOD MANAGEMENT STUDY, MARCH, 1995. Area also includes land within 100' of bank of mapped streams, brooks, and rivers.)



Underhill Center Village Zoning District
 Approved 2020 Town Meeting Day (March 6, 2018)



P - PRIVATE
 U - UNUSED

LEGEND
 Interstate Highways: 
 U.S. & State Highways: 
 State and Local Roads: 
 Seasonal Road: 
 Railroad: 
 Trail: 
 State Boundary: 
 County Boundary: 
 Municipal Boundaries: 
 Village Boundaries: 
 Public Area: 
 Private Road: 

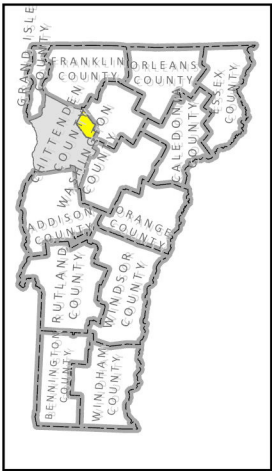
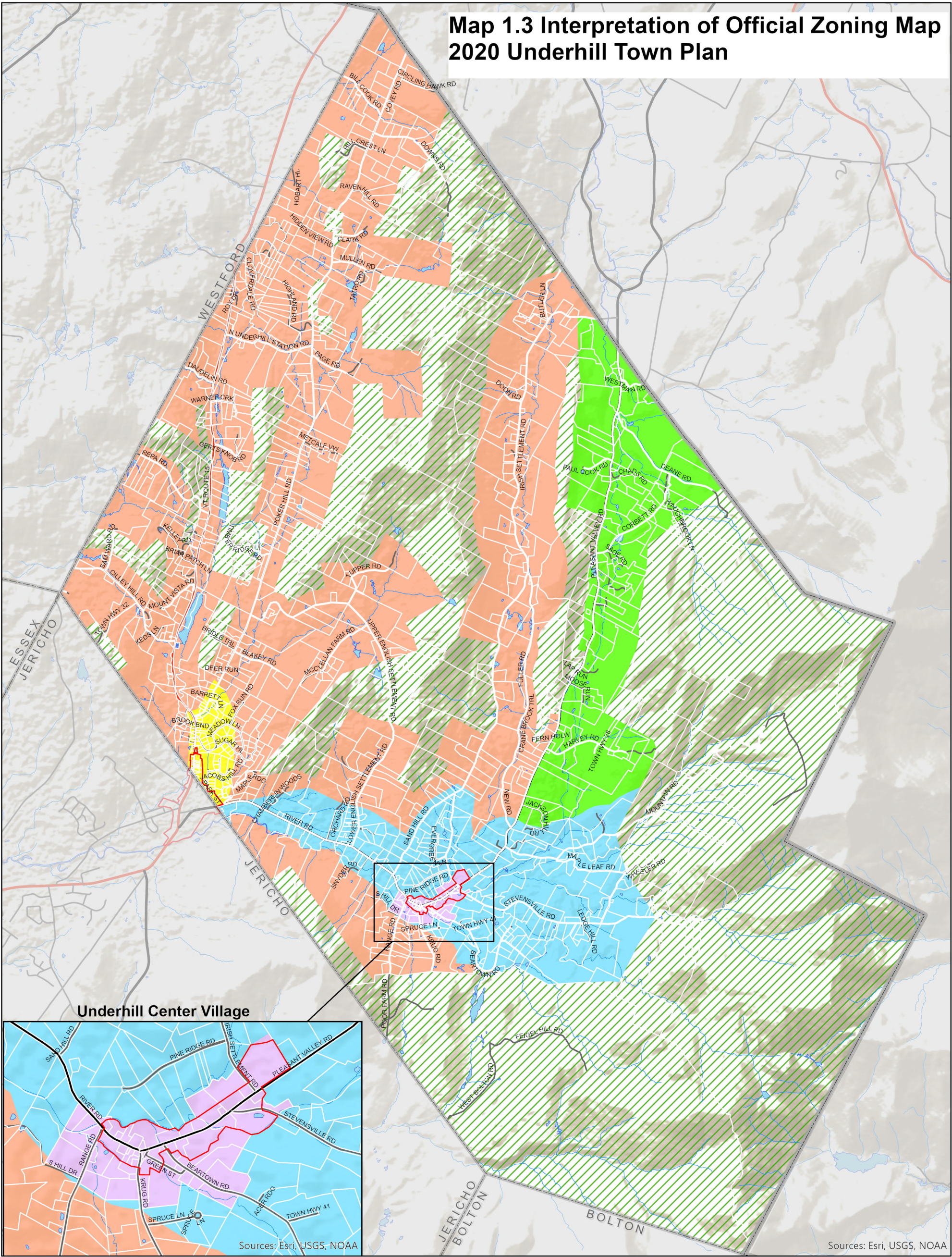
Date: DECEMBER 1974
 Revised: NOVEMBER 1983
 DECEMBER 1985
 NOVEMBER 1986
 MARCH 1988
 MARCH 2018

TOWN OF
UNDERHILL

The preparation of this map was financially aided through a federal grant from the Department of Housing and Urban Development under the Urban Planning Assistance Program authorized by Section 701 of the Housing Act of 1964 as amended, and through a grant from the Vermont Planning and Community Services Board.

CHITTENDEN COUNTY REGIONAL
 PLANNING COMMISSION
 P.O. Box 108
 Essex Junction, Vermont 05452

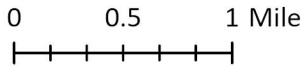
Map 1.3 Interpretation of Official Zoning Map 2020 Underhill Town Plan



- Zoning District**

 - Mt. Mansfield Scenic Preservation (Local Possible Constraint)
 - Rural Residential
 - Soil and Water Conservation
 - Underhill Flats Village Center
 - Underhill Center Village
 - Water Conservation
- Legend**

 - Stream Centerline
 - Water Body
 - Road Centerline
 - State Highway
 - Town Highway Class 2
 - Town Highway Class 3
 - Town Highway Class 4
 - VT Designated Village Center



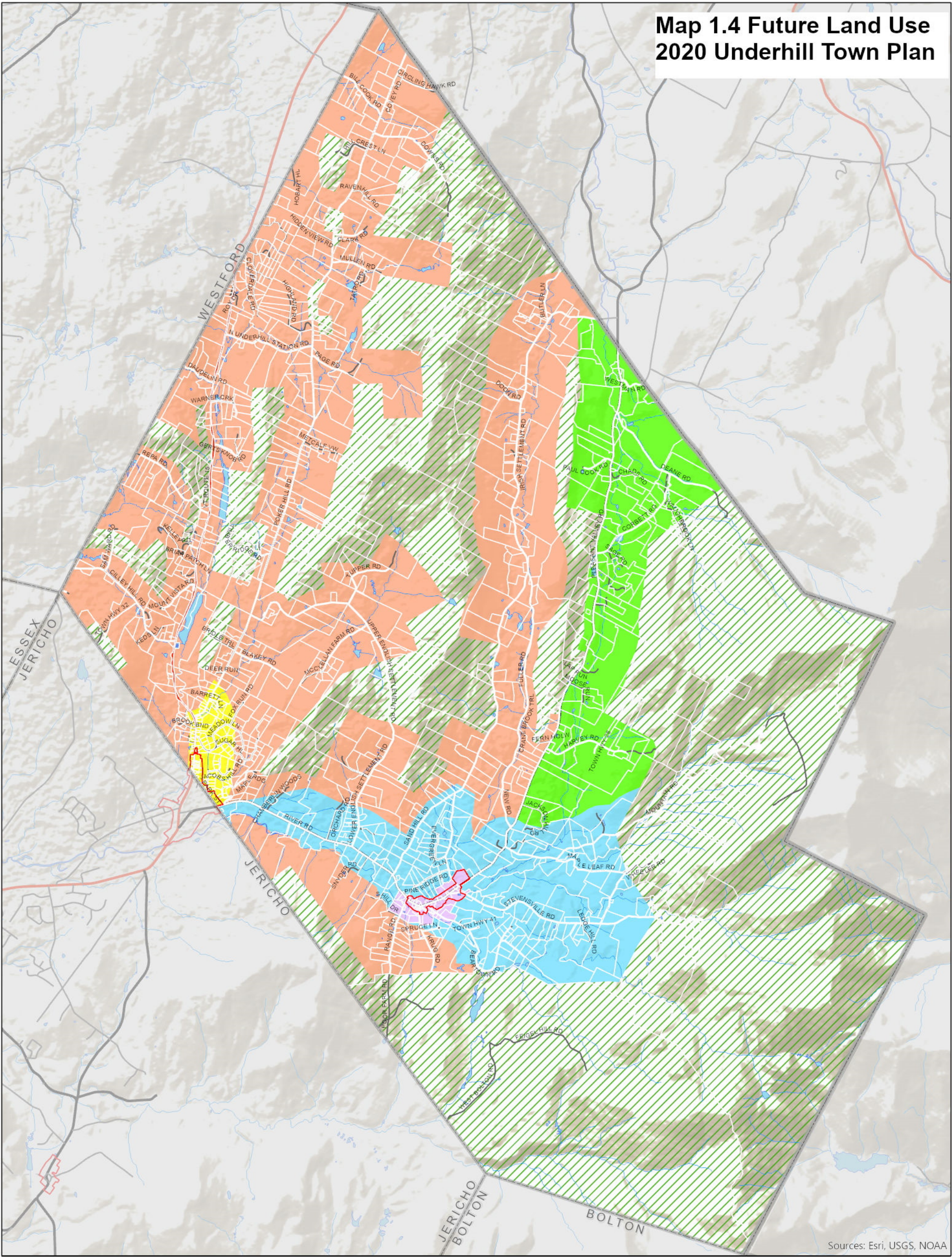
Source: Road Centerline - E911, 2020; Surface Water - VHD, Future Land Use, CCRPC; Map created by M. Needle using ArcGIS Pro. All data is in State Plane Coordinate System, NAD 1983.

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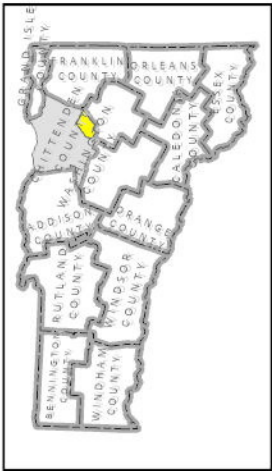
CHITTENDEN COUNTY RPC
Communities Planning Together
2/18/2020

Document Path: D:\Projects\20\Underhill\2020TownPlanMaps.aprx

Map 1.4 Future Land Use 2020 Underhill Town Plan



Sources: Esri, USGS, NOAA



Legend

- | | |
|-----------------------------------|------------------------|
| Zoning District | Stream Centerline |
| Mt. Mansfield Scenic Preservation | Water Body |
| Rural Residential | Road Centerline |
| Soil and Water Conservation | State Highway |
| Underhill Flats Village Center | Town Highway Class 2 |
| Underhill Center Village | Town Highway Class 3 |
| Water Conservation | Town Highway Class 4 |
| VT Designated Village Center | |

0 0.5 1 Mile



Source: Road Centerline - E911, 2020; Surface Water - VHD, Future Land Use, CCRPC; Map created by M. Needle using ArcGIS Pro. All data is in State Plane Coordinate System, NAD 1983.

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Chapter 2



Natural Resources

- GOAL 1:** Ensure responsible stewardship and sustainable use of natural resources in Underhill, which includes strategies that promote climate change resilience and mitigation.
- GOAL 2:** Protect natural features in Underhill that contribute to ecological health and biological diversity.
- GOAL 3:** Support Underhill’s rural character, conserved natural areas, scenic landscape, working farms, managed forests, and cultural heritage.
- GOAL 4:** Encourage participation, education and appreciation of Underhill’s natural resources.
-

POLICY 1: Collaborate with property owners to help preserve working forestlands, agricultural lands, and significant natural resources, including open space.

Strategies:

1. Conduct a natural resources inventory of the Town to identify significant interior forest blocks, significant farmland, and significant natural resources.
 2. Develop a natural resource map that incorporates the findings from the natural resources inventory.
 3. Provide property owners with information about sustainable land management techniques, as well as sources for technical and financial assistance.
 4. Ensure proper access to forest and/or agricultural land.
 5. Consider adopting a “right-to-farm” provision within the Town’s land use regulations.
 6. Provide guidelines where possible that are consistent with State law⁸ and ensure logging does not create environmental instabilities (e.g. increased flooding, erosion, sedimentation, etc.).
 7. Amend the *Land Use & Development Regulations* to address inconsistencies pertaining to the maximum height requirements.
 8. Collaborate with local conservation groups to conserve and manage open land.
-

POLICY 2: Maintain and improve forest blocks and significant wildlife habitat and habitat connectors, and minimize forest fragmentation in order to promote the health, viability, and ecological function of forests, while collaborating with property owners.

Strategies:

1. Evaluate State and regional recommendations pertaining to the locations of significant wildlife habitat.
 2. Identify areas of habitat connectors, which includes, but is not limited to: greenways, riparian lands, and forested strips.
 3. Seek landowner support in identifying and preserving significant wildlife habitat and habitat connectors.
 4. Educate landowners about low impact development in significant wildlife habitat.
 5. Purchase or acquire easements to protect and encourage contiguous significant wildlife habitat.
 6. Promote the utilization of shared driveways and shared curb cuts for development and subdivision projects.
 7. When re-examining the zoning districts in accordance with strategies under Chapter 1 of this plan, consider the minimum lot sizes and their impact to forest fragmentation.
 8. All development, including renewable energy generation and associated infrastructure, should minimize forest fragmentation.
-

POLICY 3: Protect significant ridgelines and steep slopes from improper development.

Strategies:

1. Continue to prohibit development above 1500 feet in elevation (FIE).
2. Identify significant ridgelines by considering scenic value, significant wildlife habitat, water quality

⁸ E.g. – <https://fpr.vermont.gov/forest/managing-your-woodlands/acceptable-management-practices>

and accessibility.

3. Classify steep slopes by considering degrees of steepness, soil types, and accessibility.
4. Define the type and amount of proper development, if any, to be allowed on significant ridgelines and steep slopes after classification.
5. Where appropriate, review and update the steep slope regulations.
6. Develop design guidelines for landowners to consider in connection with construction on steep slopes.

POLICY 4: Support the conservation of rare, threatened, and endangered species.

Strategies:

1. Identify the location of rare, threatened, and endangered species.
2. Ensure continued compliance with Vermont law with respect to rare, threatened, and endangered species.
3. Educate residents about rare, threatened, and endangered species through outreach programs held annually.
4. Prohibit development, including renewable energy generation and associated infrastructure, on areas with identified endangered species.

POLICY 5: Prevent the spread of invasive species.

Strategies:

1. Identify priority non-native invasive species (plant and animal) and prioritize areas for monitoring and management.
2. Educate residents, visitors and Town personnel regarding the identification, threats, and control of invasive species.
3. Cooperate with private, local, State, and federal groups to address the threat of invasive species.
4. Develop a Town policy regarding the encounter, remediation, control, management, and removal of invasive species.
5. Where feasible, control the spread of existing invasive species in coordination with Town-initiated work projects.

POLICY 6: Ensure the protection of wetlands.

Strategies:

1. Maintain Class I designated wetlands in their natural condition; ensure that permitted alterations in Class II and Class III wetlands do not significantly diminish their functional and ecological integrity, or aesthetic values; and comment on applications submitted to the Vermont Wetlands Offices as necessary to ensure the above.
2. Develop a Town natural resources map that accurately depicts, to the best extent possible, wetlands in Underhill.
3. Identify priority wetlands for restoration, mitigation, and maintenance.
4. Educate landowners about the value, importance, and necessity of wetlands and vernal pools.
5. Offer landowners expertise and resources in connection with the management, restoration, maintenance, and creation of wetlands and vernal pools.
6. Purchase or acquire easements to protect vulnerable wetlands.
7. Seek technical and financial support from State and federal agencies to protect wetlands.

POLICY 7: Identify locations of sand, gravel, and stone in Underhill that might be extracted for Town use.

Strategies:

1. Evaluate quantity, quality, and feasibility of extraction with landowner input.
2. Review and update the Town's zoning regulations as they relate to the extraction of sand, gravel, and stone to consider environmental impact.

POLICY 8: Understand and minimize air pollution throughout Town.

Strategies:

1. Identify areas in Town, if any, where local sources may cause significant air pollution, and, if so, how many days per year on average.
2. Consider methods for reducing significant local sources of air pollution, if any are identified.
3. Consider proposing regulations with respect to outdoor wood burning stoves.
4. Educate Town residents about cleaner burning (wood) stoves and encourage the removal of old stoves through swap programs or programs related to other, similar heating appliances.

POLICY 9: Plan for and mitigate flooding damage to public infrastructure, private property, and natural areas.

Strategies:

1. Identify flooding threats and develop a process to mitigate harmful effects.
2. Periodically update the Town's All Hazard's Mitigation Plan, which pertains to the inventory of existing structures within mapped floodplains.
3. Keep current Flood Hazard Area Regulations and consider whether or not they need to be strengthened.
4. Develop a River Corridor Management Plan to help regulate development in floodplains and lands adjacent to streams.
5. In accordance with 20 V.S.A. § 45, consider adopting river corridor protections required by the Emergency Relief Assistance Fund (ERAF) to increase Underhill's State funded support to 17.5% of recovery costs in disaster declarations.
6. Require native plant riparian buffers and maintain setbacks for erosion control along rivers, streams, and ponds to allow natural channel modification.
7. Adhere to the Municipal Roads Program and permitting requirements and continue to study the contribution of Town roads, bridges, and culverts to stormwater runoff, their adequacy to mitigate runoff, and associated damage.
8. Ensure that all new roads, road improvements, and driveways are properly constructed to minimize erosion and scouring; road improvements should follow the current Town Road and Bridge Standards as adopted by the Selectboard.
9. Assure that all new construction employs effective erosion control measures as required in the associated permit and distributed guidelines.
10. Update Town regulations as techniques and technologies for stormwater control improve and ensure training for Town Employees.
11. Review the All Hazard Mitigation Plans on a regular basis and follow-up on identified strategies for emergency preparedness and coordinated response planning efforts.
12. Educate landowners about developmental impacts to brooks, streams, and rivers (e.g. illegal construction of bridges).

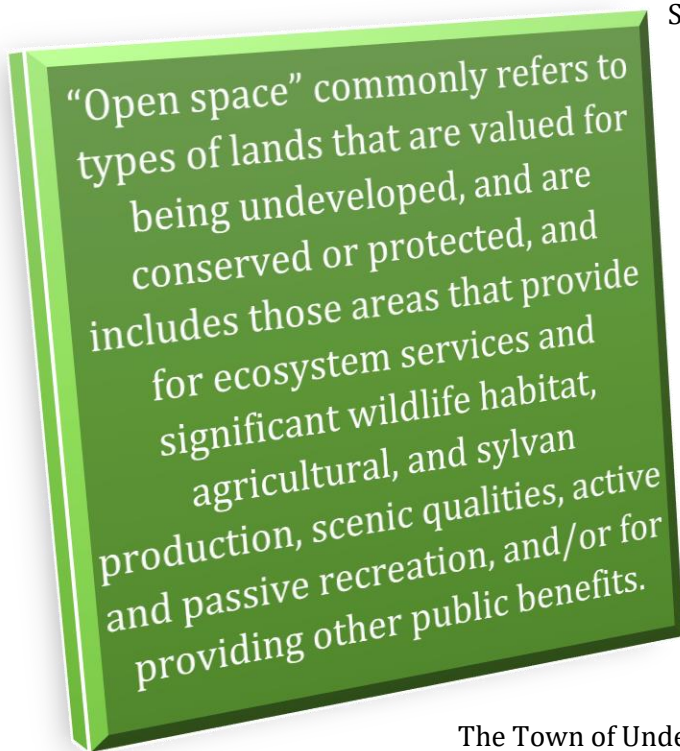
POLICY 10: Protect surface and ground water resources for water quality, flood resistance, and natural resource resiliency.

Strategies:

1. Review the Land Use Regulations as they relate to surface water setbacks and amend if necessary.
2. Ensure the Town Natural Resource map accurately depicts significant surface waters in Underhill.
3. Purchase or acquire easements to protect vulnerable surface waters.
4. Seek technical and financial support from State and federal agencies to protect surface waters.
5. Explore how best to provide well-yield data to the Development Review Board.
6. Encourage water conservation through education.
7. Develop and/or distribute guidelines as they relate to the conservation of water.
8. Develop a database of wells and wastewater systems.

BACKGROUND

The Town of Underhill is situated between the Champlain Valley to the west and Green Mountains to the east, and lays on the slopes of the State's tallest peak – Mt. Mansfield – including its summit. Nestled within the Green Mountains, which are known for their cool climate, forested mountains, and steep rushing streams, the landscape has greatly influenced local patterns of human activity, settlement, and commerce.



Settlement within Underhill first centered around the most reliable power source at the time – the Brown's River and its many tributaries. The Browns River originates above Underhill Center, flows parallel to River Road to Underhill Flats and then continues out of the Town, eventually converging with the Lamoille River and into Lake Champlain. Early settlements in Underhill Flats and Underhill Center took advantage of the Brown's River and its tributaries to provide water for steam engines that powered various potato starch factories, and stream water wheels that powered a tannery and shoemaking factory. Similarly, the local logging industry made use of sawmills powered by mill wheels and operated when streams were full and flowing. As land was cleared of trees, agriculture expanded from prime lands adjacent to River Road further up the hillsides. Underhill was characterized as having a working landscape, using these natural resources to provide food and welfare for residents of the Town. However, in recent times, a reversal of land uses has occurred, which has reduced agricultural lands and the number of farms.

The Town of Underhill relies on regional and State mapping and data sources pertaining to natural resources (e.g. the Vermont Center for Geographic Information, ANR Atlas, and Biofinder). While these data sources are not always accurate or precise, they provide Underhill officials with planning support to protect significant natural resources – both in the preparation of zoning regulations and during review of development proposals.

OPEN SPACE

"Open space" commonly refers to types of lands that are valued for being undeveloped, and are conserved or protected, and includes those areas that provide for ecosystem services and significant wildlife habitat, agricultural, and sylvan production, scenic qualities, active and passive recreation, and/or for providing other public benefits. Planning for Open Space allows a community to: identify resources they find important to protect, assess their relative value, and develop strategies for protecting or managing those resources. Open space plans can include: private ownership, conservation land acquisitions, purchase of development rights, Town land contracts, the State of Vermont Use Value Appraisal (commonly known as "Current Use") program, or other voluntary agreements a landowner might enter into in order to protect, preserve, restrict or limit development beyond the Town's zoning bylaws.

Town Land Contracts: As of 2019, a total of 76 properties comprising 3,654.7 acres are enrolled in the Town's Land Contracts program, which offers landowners tax reductions when they agree not to subdivide their land for a period of 10 years. To qualify for the program, a landowner must own a minimum of 10 acres. In return, the Town taxes the landowner at 50% of the regular rate on land above the 10-acre required minimum. Underhill taxpayers pay the difference between this lower tax and the tax at full listed value. With the exception of being able to subdivide a parcel of land for a family member, should a landowner withdraw from the contract prior to the 10-year period ending, he or she must pay the taxes saved over the preceding five years plus a penalty.

Current Use Contracts: As of 2019, a total of 97 properties in Underhill comprising 9,370.39 acres are enrolled in the State’s current use program. Under this program, the State taxes farm and forestry land according to its “actual use value,” which is determined by the Current Use Advisory Board, rather than its potential development value. For example, farm buildings are valued at 30% of fair market value. The minimum requirement to utilize this program is 25 acres, and unlike the Town’s Land Contract, which has a term of 10 years, the State’s Current Use Contract does not have a term, as the land is enrolled indefinitely. Withdrawing land from the contract requires the submission of a “Notice of Development or Discontinuance” form, as well as paying a land use change tax. For clarification purposes, a landowner in this program continues to pay municipal taxes on the actual use value and the State reimburses the Town for the difference between this lower tax and tax at full listed value.

In the Town of Underhill, the zoning bylaws have contributed to the preservation of open space. Whether a direct or indirect result, the formation of the Town’s two lowest density districts, the Mt. Mansfield Scenic Preservation District, and the Soil & Water Conservation District, have helped preserve open space. This has assisted the Town’s effort in open space planning. While such low-density zoning can contribute to urban sprawl, for the Town of Underhill, low density zoning serves as a reasonable compromise between the rights of private owners and other interests, such as preserving the rural character of the Town.

FUN FACT:

OF UNDERHILL’S 32,896 ACRES, APPROXIMATELY 13,025 ACRES ARE ENROLLED IN TOWN LAND CONTRACTS OR THE STATE’S CURRENT USE PROGRAM, WHICH IS APPROXIMATELY 39.5% OF UNDERHILL TOTAL ACREAGE

In addition to the Town’s zoning district requirements, some areas of open space in Underhill have been preserved through the subdivision process as part of Planned Residential Developments – though infrequent. Moreover, a recent initiative has emerged in coordination with the Jericho-Underhill Land Trust to purchase and conserve the Tomasi Meadow, a parcel of land alongside Pleasant Valley Road, adjacent to Casey’s Hill, that has an extraordinary view of Mt. Mansfield. As the Town continues to explore more open space initiatives and/or opportunities, a more comprehensive look at the entire Town and adjoining towns should be considered to help identify the important lands, natural resources, and areas of connectivity that will allow for continued ecological functions and value.

AGRICULTURE

According to the Agency of Natural Resources, the Town of Underhill contains ~4,509 acres of prime agricultural soils (see Map 2.1), some of which are devoted to farming operations. The most prominent agricultural lands in Underhill, utilizing these highly concentrated prime agricultural soils, are along River Road, as this area has been the beneficiary of post glacial flooding. These farming operations are valued commodities within Underhill, as they contribute to the economic, social, environmental, and aesthetic values within the community. Unfortunately, with increasing operation costs, as well as the rise in investment-backed expectations of developing one’s land, the pressure to sell or develop agricultural land is rising. Should agricultural land be developed for non-agricultural purposes, its agricultural production abilities are forever lost. As a result, the Town faces a planning challenge in maintaining the landowner’s equity while at the same time trying to preserve agricultural land.

While agricultural operations are of value in the Town of Underhill, they also serve as a contributor to surface and groundwater pollution, which have led to problems such as blue green algal blooms in downstream waterbodies. Underhill’s streams flow into Lake Champlain, and therefore, are part of regional efforts to reduce water

contaminants. Significant strides have been made to reduce agricultural non-point sources of pollution; however, these agricultural operations remain a leading source of pollution in Vermont. The Town should continue to refer farmers and others looking to engage in farming practices to the Vermont Agency of Agriculture to ensure compliance with the Required Agriculture Practices, and, where applicable, enforce the Town's zoning regulations and facilitate with the enforcement of the State's health code regulations to help deter pollution from non-point sources.

FOREST RESOURCES

Comprised of 32,896 acres, Underhill contains an extensive forest network. The Town contains approximately 7,961 acres of productive timberland, producing lumber to meet local and regional needs. Mt. Mansfield State Forest (~7,141 acres), the Ethan Allen Firing Range (~3,711 acres), and UVM associated properties (Proctor Maple Research Center and the Chin, totaling 332 acres) account for considerable amounts of forestland. In addition, ~3,655 acres are enrolled in Town Land Contracts which inhibits the land from being subdivided (with a family-member exception – see Land Use Chapter). In total, approximately 70% of the total acreage in Underhill is in some way comprised of forestland.

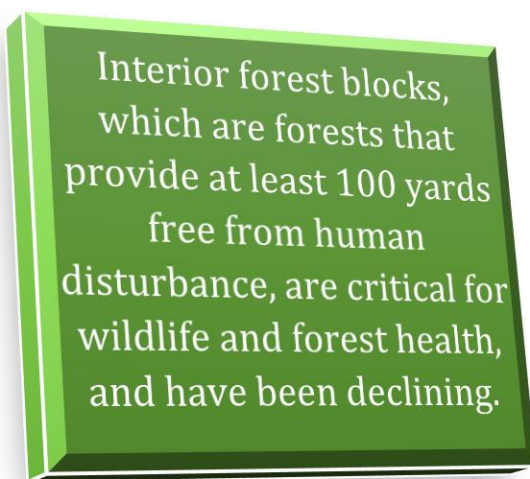


Much of the Town's forests are managed by private landowners. As a result, these privately-owned forests are managed for a variety of purposes, including commercial logging. Many residents utilize the State's current use program to manage their forest in a sustainable manner. The majority of the Mt. Mansfield State Forest is managed for public recreation, forest research, and some logging, and is maintained by the State Department of Forests, Parks and Recreation. Continued management of these forestlands is an important community goal, as 66% of the survey participants (285 survey-takers) either believe that the Town's protection of the forestland through zoning regulations is either too little or sufficient.

The traditional uses of forestland (e.g. timber extraction, significant wildlife habitat, recreation, scenic resources, etc.), and the forestland itself, are essential to maintaining the rural character of Underhill, and therefore, continued management of this natural resource is an important community goal. As time progresses, the extent to which the viability of working forests is inextricably tied to adequate access and overall land base becomes more and more clear. Likewise, continued citizen awareness of the value of maintaining working forestlands is required to sustain community support for the benefits associated with timber harvesting. As a greater number of residents begin to pursue subdivision and development opportunities, a resulting consequence is the fragmentation of large forest blocks into smaller blocks, compromising forest integrity and wildlife

corridors, and making long-term timber management more difficult. However, even if these large forested parcels are maintained, development along Town roads must be carefully planned to avoid isolating interior forest lands, and, at the same time, given low profit margins and site-specific constraints, working forests require suitable access for equipment and timber harvesting.

Additionally, the impacts of forest fragmentation on wildlife and recreation are a concern. Interior forest blocks, which are forests that provide at least 100 yards free from human disturbance, are critical for wildlife and forest health, and have been declining.⁹ This decline is notable as climate change becomes more evident and forest health and sustainability are increasingly essential. For example, by maintaining abundant, diverse and connected forestland, the forests will sequester significant amounts of atmospheric carbon, and will be more resilient



⁹ For more information relating to Underhill's forest, visit the Vermont Parcelization Website at: <https://vtforesttrends.vnrc.org/home>

(adaptable) to the effects of changing climate, as well as continuing to provide habitat and natural resources to support Underhill and sequester a significant amount of the carbon.

Another important forest management issue the Town needs to continue to consider centers around vegetation, specifically trees, in the Town's rights-of-way. Paying attention to these areas not only adds to the aesthetic quality of the Town, but healthy trees provide the benefit of soil stability, while a sick or dying trees can create a danger during harsh weather (i.e. wind storms and heavy snow) leading to liability issues should they cause any damage. Over the last few years, the Town's road crew has worked diligently to reduce hazards in heavily forested areas within the Town's rights-of-way, specifically along Irish Settlement Road, Maple Ridge Road, Upper English Settlement Road and Downes Road.

The creation of a natural resource map could help identify forest resources, allowing for a more thorough evaluation of site-specific potential and value to the community. This natural resource map may also lead to the identification of forestland that has been affected by, or is susceptible to, invasive species, which can assist the Town in developing both preventative and/or rehabilitate responses. As part of the process of developing this natural resource map, similarly to the preservation of agricultural lands, the Town must continue to explore options that strike a balance between property rights and conservation of the Town's forestland.

SURFACE WATERS

Similar to the Town's agricultural and forestland resources, Underhill's surface waters also play a significant role in the Town's enjoyment of its rural character and setting. The rivers, streams, and ponds in Underhill have great value as significant wildlife habitats and corridors, as well as for recreational purposes. Not only do these resources provide local value, but also regional value, as these waterways eventually drain into Lake Champlain, which is an important natural, cultural, and economic resource for Underhill residents, Vermont residents, and other national and international users. Any use or misuse of these surface waters has an impact on all of the communities within the drainage basin.

To assist in the planning and management of these drainage basins, Underhill has participated in, and adheres to, two Tactical Basin Plans – the Lamoille River Tactical Basin Plan and the Winooski River Tactical Basin Plan. Tactical Basin Plans are water quality management plans that aim to protect, maintain, enhance, and restore the quality of the basin's surface waters. The Plans provide information and data to support their assessments and recommendations. Projects in Underhill that have been completed in conformance with these Plans include the various roadway maintenance projects along public highways and the construction of a bioretention pond along Pleasant Valley Road at the Town's offices.

The Brown's River, a major tributary of the Lamoille River, serves as the main watercourse in Underhill. The Brown's River begins on Mt. Mansfield and is joined by Stevensville Brook and Clay Brook, both of which also begin



on Mt. Mansfield, in Underhill Center. Also converging with the Brown's River in Underhill Center are Harvey Brook, Crane Brook, and Mill Brook, all of which begin on the lower adjacent hillsides. The convergence of all of these brooks and rivers creates numerous issues due to Underhill Center's high ground water level and vulnerability to flooding. Upon leaving Underhill Center, the Brown's River flows parallel to South Hill, meandering through a broad floodplain along River Road. Upon reaching the outskirts of the Underhill Flats Village in Jericho, the Brown's River is joined by the Creek, a slow flowing stream and important wetland paralleling Vermont Route 15. To note, the Creek is joined by Roaring Brook, a significant tributary, prior to the Creek crossing into Jericho.

Outside of the Brown's River watershed, Seymour River and Beaver Brook are two other major rivers/brooks in Underhill. The Seymour River flows north towards Cambridge, into the Lamoille River, and is directly responsible for the rich agricultural soils along Pleasant Valley Road. On the other side of Town, Beaver Brook drains from Metcalfe Hill in North Underhill, across Westford, and into the Lamoille River.

Besides the aforementioned rivers and brooks, Underhill contains numerous unnamed streams, although these streams typically have low volumes and/or are intermittent in nature. While these streams are less prominent than their named counterparts, they still serve important functions, such as seasonal drainage ways.

WATER QUALITY & STORMWATER

Surface waters are subject to many sources of pollution, which are generally divided into point and non-point sources. Point sources are those where a clearly defined source, such as a malfunctioning septic system, is the cause of the pollution. Non-point sources are those where there is no clearly recognizable pollution source, such as stormwater runoff from roads, driveways (paved or unpaved) or parking lots. Non-point sources are far more difficult to locate and control, and their potential for damage is great.



Surface waters are also susceptible to damage from erosion of stream banks and siltation, as well as actively shifting physical location. The Town should continue to maintain regulations that attempt to mitigate these potential harms by ensuring the 100 ft. setback requirement for all structures and impervious surfaces from named streams and bodies of water are followed. The 100 ft. setback requirement helps preserve the riparian forests and vegetation, which contribute to bank stabilization. Over time, various portions of river and stream corridors¹⁰ begin to lack important riparian forest, and therefore, the Town should review their current zoning regulations to ensure that the erosion and pollution controls measures are adequately addressed and updated where applicable.

Soil characteristics and type of ground cover directly affect the ground's capacity to absorb water. For example, precipitation (i.e. rain) absorbs into the ground differently in sandy soil v. shallow soil covering ledge. Once the soil becomes saturated, the precipitation accumulates on the ground's surface, becoming stormwater runoff. Stormwater runoff increases as the intensity and duration of storms become greater and longer. A contributing factor to stormwater runoff is impervious and hardened surfaces (e.g. rooftops, roadways, driveways and parking lots), as these features prevent, or greatly hinder, water from percolating into the ground.

Stormwater runoff becomes especially problematic in developed locations because it absorbs chemicals as it flows over the earth's surface, propelling un-dissolved particles and other suspended materials to other locations and becoming a source of water pollution. As the volume of stormwater runoff increases with the increasing intensity and frequency of rain events, more chemicals and suspended materials can be transported via stormwater runoff. The impact from increased flow of stormwater runoff is exacerbated over steep slopes, which comprise a large portion of Underhill. As a result, there is scouring of soils and organic matter that are subsequently transported downhill or downstream. Increased volumes of stormwater runoff oftentimes result in damage to roads, driveways and property. Vegetative groundcover on slopes can slow the runoff and diminish the transport of

¹⁰ Visit https://floodready.vermont.gov/flood_protection/river_corridors_floodplains/river_corridors for visual information.

materials and flooding of nearby infrastructure and development.

In 2018, the Town of Underhill adopted a Stormwater Water Master Plan, which is discussed more in this Plan's Infrastructure Chapter. To review that plan, please visit the Town's website.

WETLANDS AND VERNAL POOLS

Wetlands are areas that are inundated by surface or groundwater with a frequency sufficient to support vegetation or aquatic life that depend on saturated, or seasonally saturated, soil conditions for growth and reproduction.

They perform several important ecological functions, such as:

- Contributing to the protection of surface and groundwater quality;
- Recharging the groundwater aquifers;
- Controlling erosion by binding and stabilizing soil;
- Providing necessary fish and significant wildlife habitat;
- Potentially containing rare and endangered flora and/or fauna;
- Potentially representing a rare or outstanding wetland community type;
- Providing opportunities for recreation, education, research, and aesthetic enjoyment; and
- Sequestering atmospheric carbon.

Vernal pools are small, open-water wetlands that are filled by rain and snowmelt during the spring or fall, but are typically dry during the summer months. Contained within a small forested basin with no permanent inlet or outlet, vernal pools do not support any fish. As a result of fluctuating water levels, a unique set of conditions support a variety of wildlife, which are specialized to take advantage of those conditions. Vernal pools are well known to be important breeding habitats for amphibians, such as several salamander species and wood frogs. Unfortunately, information regarding the distribution of vernal pools in Underhill is limited, and therefore, further studies are required to better understand and locate this natural resource.

The Vermont Water Resources Panel has developed a three-tiered system to classify wetlands for protection purposes. Class I and Class II Wetlands are considered "significant" as they support the functions described above, and are therefore protected by the Vermont Wetland Rules and by the Town's land use regulations. Class III Wetlands are those wetlands that have not yet been evaluated or are not considered significant under the Vermont Wetland Rules. Class III Wetlands continue to be regulated in Underhill.

The best resources to help identify wetlands are the National Wetlands Inventory maps or the State's Agency of Natural Resource Biofinder website. These tools are more of a guide, and therefore, should be used with caution as they were prepared using aerial photography rather than field inventory. As a result, they are oftentimes mapped with minimal precision, or if not seen on the aerial photograph (e.g. in a forested area), are not mapped at all.

Wetlands are areas that are inundated by surface or ground water with a frequency sufficient to support vegetation or aquatic life that depend on saturated, or seasonally saturated, soil conditions for growth and reproduction.

reproduction
conditions for growth and
seasonally saturated soil
that depend on saturated or

Ultimately, a definitive determination requires a site investigation.

In Underhill, there are no Class I Wetlands; however, Class II Wetlands are abundant. The most prominent Class II Wetland areas in Underhill are along Route 15, in the immediate vicinity of the Creek, as well as in the vicinity of Crane Brook. To better understand the functions and values of other wetlands in Underhill requires a field inventory and assessment by a natural resource professional and should be considered as part of the development of a natural resource map.

GROUNDWATER

The most significant quantities of groundwater are found in aquifers, geologic formations that have the capability to store, transmit and yield useful quantities of water to a well or spring. Land through which water percolates to become groundwater is referred to as a recharge area. Since nearly all Underhill residents obtain their water from wells or springs, clean and plentiful groundwater and recharge areas are critical resources that maintain health and well-being. As a result, the importance of groundwater quality and quantity, present and future, makes protection of this resource a top priority. Clean water has the added benefit of reduced costs for treatment procedures.

The metamorphic schist that forms the bedrock of Underhill is an important groundwater recharge aquifer that holds water in the cracks. Unlike porous materials, such as sand and gravel that filter bacterial pollution over relatively short distances, the interconnecting cracks in the rocks in Underhill's bedrock can travel miles and are extremely vulnerable to pollution. As a result, wells are susceptible to contamination even though they may be far from the source of contamination.

Recharge areas and the associated groundwater supply are vulnerable to contamination by many sources. Examples include: failing septic systems, animal waste, leaking underground storage tanks, improper disposal of household and industrial waste, inappropriate use of pesticides, herbicides and fertilizers, and excessive road salting. Contamination can also be caused by naturally occurring substances such as radioactivity in the deeper layers of the bedrock, as well as decaying plant and animal matter in areas closer to, or on, the surface. Large impervious surfaces from developed lands prevent water infiltration and can deplete groundwater. Maintaining clean and abundant water in Underhill's aquifers will require understanding the sources of contaminants, as well as understanding the issues associated with groundwater depletion and pollution, and will be vital to evaluating and directing future growth within the Town.

Since nearly all Underhill residents obtain their water from wells or springs, clean and plentiful groundwater and recharge areas are critical ... [and] protection of this resource [is] a top priority.

The Vermont Agency of Natural Resources has mapped a number of Source Protection Areas, which include recharge areas for public community water supplies (those serving 25 or more full-time users). Specifically, the Agency of Natural Resources has identified Mt. Mansfield as containing a Surface Water Protection Area (see Map 2.2), while a Groundwater Source Protection Area (see Map 2.2) has been identified in the immediate vicinity of Poker Hill School, as well as an area that closely corresponds with the Water Conservation zoning district. The known active public and private community water systems are: the Jericho-Underhill Water District area, Roaring Brook, Beartown Road, Timber Ridge, Underhill Central School and ReTribe Transformations (previously known as the Maple Leaf Farm facility).

As the Planning Commission continues to review zoning regulations, water yields and groundwater resources need to be considered, especially in regard to the newly created Underhill Center Village zoning district.

FLOODPLAINS & FLOOD RESILIENCY

Floodplains

A Special Flood Hazard Area (SFHA), also known as a floodplain, is an area bordering a lake, stream, or river that is subject to the impacts of flooding. A floodplain boundary typically derives from the limits of a 100-year or 500-year flood level. A 100-year flood is a flood that has a 1 in 100 chance of occurring in any given year, while a 500-year flood is a flood that has a 1 in 500 chance of occurring in any given year. Ultimately, the floodplain boundary is determined and mapped by the Federal Emergency Management Agency and is based on topography and estimated flood flows. Special Flood Hazard Areas, River Corridors, and River Corridor Protection Areas are depicted in Map 2.2.

Due to spring rains, heavy thunderstorms and/or winter snow thaw, flooding is common in Underhill, and since many residents live in lower lying areas, these flooding events can result in property damage and hazardous road & driveway conditions. Severe flooding can result in long term detrimental effects on stream banks, as well as cause erosion events, which can damage roads, driveways and infrastructure. In the early 2010s, the Town identified portions of waterways that were susceptible to erosion after conducting a Geomorphic Assessment (Phase 1 and II) of the Brown's River. Reengaging with this data would be prudent in the coming years to determine if additional protective measures relating to the Brown's River need to be pursued. Furthermore, the Agency of Natural Resources has developed a State river corridor map. This map incorporates all local geomorphic assessments and should be reviewed to verify the information relative to Underhill is accurate. Additionally, this information should be considered in the development of a River Corridor bylaw.



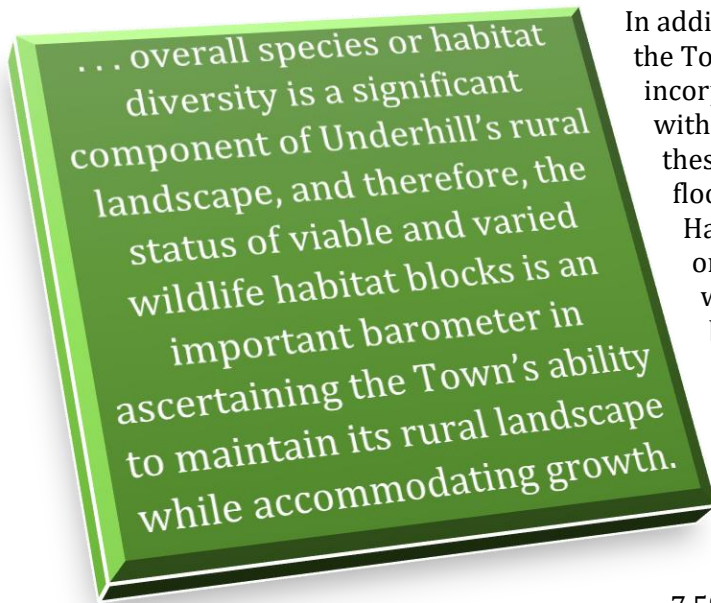
Photograph 2.2 – Flooding in the Roaring Brook vicinity

In the 2000s, Underhill developed floodplain regulations, which were formally incorporated into the Town's land use regulations in 2011. The Town identified floodplains and implemented associated regulations, which can prove to be a valuable asset, encouraging development outside of these areas, or built to flood resilient standards, thereby protecting property and life by reducing the potential damage caused by flooding. Additionally, identifying floodplain areas and implementing flood-related regulations helps protect significant wildlife habitats, and creates corridors for animal movement. Furthermore, floodplains also contain some of the richest and most viable agricultural lands due to the concentration of alluvial deposits left behind by past floods. The aforementioned components of floodplains thereby serve as an integral part to the Town's overall natural resource pattern and are important to maintain in accordance with the adopted floodplain regulations.

Flood Resiliency

Prior to the implementation of the Town's Special Flood Hazard Areas regulations, which have been incorporated into the Town's current zoning bylaws, Underhill's only regulations relating to flood resiliency were flood protection measures incorporated in the Town of Underhill All Hazards Mitigation Plan, which outlined previous efforts to become a more hazard resilient community. This plan was developed in conjunction with the Chittenden County Regional Planning Commission, which assists the Town with identifying all hazards (including flooding) facing the community, and developing mitigation strategies to reduce the impacts of those hazards. In addition to

severe winter storms, flooding was identified as a natural hazard with one of the highest risk ratings. The Town's All Hazards Mitigation Plan also identifies a significant number of existing homes, culverts, bridges, utility poles, and critical facilities located within the Special Flood Hazard Area, as well as identifies strategies to reduce hazard risks.



In addition to the Town of Underhill All Hazards Mitigation Plan, the Town's adopted floodplain regulations, which are incorporated within its zoning bylaws, address development within identified floodplains. Should development occur within these sensitive areas, the development should not exacerbate flooding. Proposed development within a Special Flood Hazard Area currently requires conditional use review and is only approved if there is no impact that would divert flood waters or increase flood hazards. These regulations are based on recommended language for communities enrolled in the National Flood Insurance Program and have been awarded an ERAF (Emergency Relief and Assistance Fund) rating of 12.5% - the middle tier. ERAF is a State program that involves financial relief and assistance to municipalities, and the amount of financial relief awarded by the State is based on the strength of the Town's floodplain regulations. A Town can be reimbursed 7.5%, 12.5% or 17.5% of the community's losses associated

with the repair or replacement to public infrastructure (e.g. transportation infrastructure), debris removal, and emergency protective measures.¹¹ In 2018, the Planning Commission revisited the idea of amending the land use regulations to determine if the floodplain regulations specifically should be strengthened in an effort to obtain the 17.5%. The Planning Commission ultimately decided against amending the floodplain regulations, as the strengthening of the regulations was thought to be too restrictive to property owners. Periodic evaluation of the floodplain regulations is recommended to determine if amendments are necessary to address changed circumstances, such as to protect public safety, natural habitats, public infrastructure, and private property, as well as a desire to take advantage of State relief programs like ERAF.

River Corridors

See § - Land Use Chapter

WILDLIFE HABITAT

A large contributor to Underhill's rural character is the Town's wildlife habitat (more specifically known as significant wildlife habitat), which reflects the diversity of the Town's natural landscape. For a viable habitat, wildlife species require food, water, and cover in addition to, at least for many species, contiguous tracts of undisturbed land which serve as reservoirs for diverse species. Smaller tracts of undisturbed land are also important, as these tracts of land can serve as habitat connectors between smaller and larger preserved areas. When significant wildlife habitat and associated wildlife corridors become fragmented, the availability and diversity of life supporting elements are limited. Consequently, as these areas become isolated, species diversity either diminishes or disappears. As noted above, overall species or habitat diversity is a significant component of Underhill's rural landscape, and therefore, the status of viable and varied wildlife habitat blocks is an important barometer in ascertaining the Town's ability to maintain its rural landscape while accommodating growth.

Significant wildlife habitat is another valued resource within the community. For the purposes of this plan, "significant wildlife habitat" includes:

¹¹ Letter from State of Vermont to Selectboards
(https://floodready.vermont.gov/sites/floodready/files/documents/Jeb_Spaulding_ERAF_1.29.14.pdf)

1. “Necessary wildlife habitat” as defined by the Vermont Statute, Title 10, to include habitat that is concentrated, identifiable, and is demonstrated to be decisive to the survival of a species of wildlife at any period in its life, including breeding and migration;
2. Wildlife habitat identified in this Plan, related maps, and inventories as significant to the Town; and
3. Wildlife habitat determined to be significant to the State, region or Town, in consultation with the Underhill Conservation Commission or the Vermont Department of Fish and Wildlife, as identified through site-specific investigation.

To note, the Town’s zoning regulations also refers “significant” wildlife habitats as “critical” wildlife habitat, and therefore, the two terms are used interchangeably therein, but ultimately should be considered as “significant” wildlife habitats. Significant wildlife habitat can also consider areas that provide habitat to species or suites of species of special importance, such as:

1. Large tracts of undisturbed forest with few, if any, roads and driveways (i.e. forest interior habitat);
2. Large tracts of open fields;
3. Early succession or transition shrub/forest areas;
4. Wetlands and riparian areas (i.e. stream areas); and
5. Unique habitat related to rare, threatened, or endangered species.

Underhill’s significant wildlife habitat is especially susceptible to fragmentation as increased development pressures emerge, and, therefore, the integration of continued growth and open space areas for habitat will be essential in maintaining the Town’s wildlife diversity. Major contributors to forest fragmentation include driveways, roads, trails and infrastructure. Recognizing potential fragmentation as development projects are reviewed and encouraging minimal impact will be important to retain the rich diversity of these areas. One specific method in minimizing developmental impact to forest fragmentation is to encourage shared driveways and shared curb cuts where economically and environmentally feasible.



Of the many types of areas containing rich diversity, surface waters, wetlands, and floodplains are foremost in offering abundant habitat opportunities in Underhill. The Creek and the surrounding wetlands along Vermont Route 15 for example have been identified as regionally significant natural areas. These wetland and riparian locations, especially in Underhill, serve as corridors for wildlife movement locally, with adjoining towns contributing to their importance. Indirectly, the identification and protection of small and large tracts of undeveloped land also provide opportunities to protect open space and water quality, as well as provide opportunities for recreation purposes. In researching patterns of development, and subsequently identifying the opportunities mentioned above, significant wildlife habitats benefit through the protection of those values.

In 2011, the Underhill Conservation Commission completed a collaborative project with the Towns of Jericho and Richmond that identified and analyzed regional connectivity, as well as priority large habitat blocks in the three municipalities. At the time this Plan is being written, the Planning Commission and Conservation Commission have renewed their efforts to identify and analyze significant wildlife habitat and habitat connectors. These efforts will hopefully be memorialized in a natural resource map in the near future and shall serve as catalyst to satisfying numerous goals and objectives of the Town’s natural resources section.

SENSITIVE NATURAL AREAS

Natural Areas

Natural areas are areas of land or water that retain their natural character and contain unusual or significant flora, fauna, geological or similar features. These areas contain some of the most significant and irreplaceable natural resources in a town and are the best examples of the various biological communities that presently exist, or have historically existed, in Town. The Vermont Natural Heritage Program has identified natural areas that are of

statewide and regional significance. As these areas relate to Underhill, probably the most prominent area, the Mount Mansfield Natural Area, encompasses the largest alpine tundra in Vermont, as well as sub-alpine areas and alpine bogs, containing some of the rarest and most fragile plants in Vermont.

Natural areas are particularly vulnerable to the impacts of development or misuses. Ideally, natural areas are large enough to serve as biological refuges where human disturbance is kept to a minimum, while also representing the diversity of the Town's natural features. Protecting these tracts is challenging from a planning perspective because of the necessity of balancing landowners' rights with the need to protect sensitive natural areas. In developing a natural resource map, the Planning Commission and Conservation Commission should consider natural areas, including rare, threatened, and endangered species. The Conservation Commission should also consider reviewing Development Review Board applications that may impact natural areas, including rare, threatened, and endangered species, and provide recommended measures to help reduce adverse impacts.

... the Mount Mansfield Natural Area, encompasses the largest alpine tundra in Vermont, as well as sub-alpine areas and alpine bogs, containing some of the rarest and most fragile plants in Vermont.

Aesthetic Considerations – Scenic Areas

The numerous and varied scenic vistas of Underhill are arguably the Town's most valued resource. This resource includes dramatic mountain views, steep wooded hillsides, streams and rivers, open fields, large expanses of wetlands, and beautiful valleys. As a result, the scenic areas are essential to Underhill's character, and are integral to Underhill's rural ambience. Furthermore, these scenic vistas form an impression of Underhill as a place to visit, work and live and encourage tourism.

Changes to the scenic character of a town generally happen incrementally, and while each change may be small by itself, over time, the cumulative impact is large. Protecting these areas in Underhill begins with first identifying the most prominent and valued aspects of the scenic landscape. Areas likely include segments along roads and highways, public recreation areas and trails, watercourse, and other publicly accessible areas. When collecting an inventory of scenic areas, topographic variety, diversity of landscape features, and the length of the view are possible criteria to consider in assessing priority areas.

As alluded to above, scenic areas are an essential quality to the Town's rural character, and therefore, reducing the impact to these areas are vital in ensuring the Town's rural character persists. At a minimum, maintaining Town roads and roadsides in a manner that is aesthetically pleasing and will contribute to positive and inspiring scenic vistas. Additionally, restricting all development from exceeding 35 ft. in height, with an exception for small-scale wind generation, specifically a small distributed wind energy system consisting of a single turbine producing up to 100 kW, will prevent unwanted visual impacts on the Town's scenery. Discussed further in Chapter 3 relating to energy, the Town of Underhill desires to prohibit large-scale wind power generation; however, would like to promote small-scale wind power generation. In order to promote small-scale wind power, the Town recognizes that exemption from the 35 ft. height restriction is required. Going forward, the Planning Commission should review the *Unified Land Use & Development Regulations* to ensure compliance with this stated policy.

In addition to protecting Town-wide scenic areas, the Planning Commission should also investigate the effectiveness of the Mt. Mansfield Scenic Preservation District. As currently devised, the District is intended to protect the scenic vistas along Pleasant Valley Road and adjoining roadways. The district functions similar to the other zoning districts, and does not contain many unique protections relating to the various scenic areas in the district. When reviewing this zoning district, the Planning Commission should evaluate if the functionality of the district attains the intended goals, or even achieve other goals indirectly that are not specifically stated. If the District is not achieving the stated goals, some options the Planning Commission could explore to help attain those

goals include: possible amendments to the zoning district or a scenic vista overlay district.

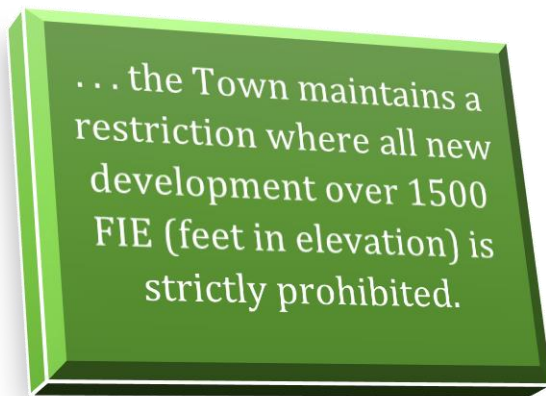
Aesthetic Considerations – Hills & Ridgelines

A ridgeline is defined as a line marking or following a ridge, top of a hill, or ledged area, behind which is open space or horizon.

When development occurs on ridgelines, they are oftentimes highly visible and result in being prominent features in the landscape, thereby detracting from the natural beauty of Vermont and the rural character of Underhill. Additionally, when development on ridgelines is visible to large areas, the development intrudes upon the natural topographical features, and at the same time disrupts the natural environment. Currently, the Town maintains a restriction where all new development over 1500 FIE (feet in elevation) is strictly prohibited. The feedback obtained about natural resources in the 2020 Town Plan Survey reinforces the desire to maintain Underhill's rural character, indirectly maintaining the 1500 FIE development restriction.

While there is much support in maintaining the 1500 FIE development restriction, Underhill State Park is experiencing growing pressure to expand staff lodging on the premises, due to a significant increase in public visitation. However, because the entire Park is over 1500 FIE potential development projects that can occur within the confines of the park are limited. The Town should collaborate with the State and explore potential solutions that would allow the Park to meet its staff needs, but also maintain the Town's desire to limit development over 1500 FIE.

The eastern portion of Underhill contains the most visible ridgelines, as this area of Town contains the higher elevations. However, the western portion of Town contains hillsides that are visually important due to their contrast to the surrounding landscape even though the topography is not as dramatic. Regardless of which part of Town, improperly planned development threatens the environment of hills and ridgelines.



Wind energy, as discussed in the energy section of this Plan, had been considered in the past as a possible source of renewable energy in an effort to attain the goal of 90% renewable energy by 2050; however, it now appears wind energy may not be a desirable method to achieve this goal. In fact, commercial wind energy is adverse to many of the natural resource policies outlined in this Plan due to its impact on scenic vistas, maintaining Underhill's rural character, and the Town's 1500 FIE restriction. While 49% of the survey takers show at least some support for commercial wind power generation, 66% of the survey takers show some support of small-scale wind power generation.¹² Therefore, the Town should consider efforts to promote small-scale wind power generation for those who are interested in incorporating wind as a form of renewable energy.

Additionally, the Town recognizes that telecommunication towers cannot be prohibited within Underhill, and are necessary to help attain the State's goal in achieving statewide telecommunication coverage.¹³ Therefore, in conjunction with wind power generation facilities, special attention should be given to these projects to help

¹² See Question 38 of the 2020 Underhill Town Plan Survey.

¹³ Reference regarding Statewide Goal of Statewide Coverage

reduce the impact to ridgelines and hillsides, and reduce the impact to Underhill's rural character and forested lands.

GEOLOGICAL RESOURCES

Geological resources consist of raw materials such as gravel, sand, and stone. These resources are essential for the Town's roads, school, and other Town infrastructure. Therefore, identifying areas within Town as potential extraction sites is important as the cost savings could be significant. While these natural resources are important for their utility, the extraction process could pose a threat to other natural resources identified in this chapter as the extraction process could potentially cause negative environmental impacts such as: erosion issues, particulate matter dispersing into the air, pollution/contamination of the surrounding environment, etc. Therefore, prior to any extraction operation, the goals, policies, and strategies of this Plan are required to be considered through the conditional use review process, and so long as all other permit requirements are satisfied, an owner's right to extract on his or her land, must not be denied.

INVASIVE SPECIES

Whether intentionally or accidentally, the introduction of non-native species to a new habitat could potentially lead to uncontrolled growth, consequently becoming an invasive species. For example, if a new plant species is introduced to an environment where there are no natural predators, the balance of the ecosystem could result in a dramatic shift resulting in an aggressive growth pattern. As a result, when an invasive species adapts to the new environment, the ecosystem is unable to accommodate the species within a manageable range, thereby tipping the balance of the ecosystem, causing the native species to suffer, decline, or become extinct. At the time this Plan is being written, Underhill is currently addressing Japanese Knotweed as an invasive species on certain Town properties, as well as collaborating on monitoring the Emerald Ash Borer.



When the ecosystem tips, non-native invasive species can significantly disrupt and alter long established habitats. Without predators or plant competition, non-native invasive species reproduce at an aggressive rate, out-competing native species. For plants, a non-native invasive species will out-compete native species for sunlight, nutrients, and space, while with animals, a non-native invasive species will out-compete native species for food and space. As the native species populations decline or become extinct, the genetic pool within the ecosystem is reduced. Wildlife populations within the ecosystem find themselves without an adequate food source. For example, smaller animals that depend on a native plant species for food could potentially decline in numbers should a non-native invasive plant species outcompete the native plant species. Consequently, the large animals that depend on the smaller animals for food are then without an adequate food supply. This pattern continues up the food chain. Additionally, as populations decline, genetic diversity decreases and makes the ecosystem, and more specifically, species within the ecosystem, more susceptible to diseases, while also making the ecosystem less likely to adapt to changing conditions such as weather disasters and climate change.

The State has a list of non-native invasive plants that warrant management actions. Some of these species, such as poison parsnip, can cause serious harm to humans when unknowingly encountered. Identification of the invasive species found in Underhill, and outreach with respect to identification and management, would allow for safe and more effective management of these non-native species.

The Conservation Commission has taken several actions to contain invasive species, like the Japanese Knotweed, such as holding educational workshops and containment outings. The Conservation Commission should continue these efforts and explore the possibility of educating the Town's highway department on ways to reduce the spread of roadside invasive plants and best management practices for roadside mowing. In addition, the Conservation Commission, with the help of planning staff, should explore mapping invasive species to assist in monitoring the spread of these species.

AIR QUALITY

Air pollution is likely overlooked due to Vermont's rural character. Awareness of air pollution is important, as this source of pollution can result in a number of serious illnesses, such as: chronic bronchitis; asthma; emphysema; and cancer or damage to the kidneys, liver and central nervous system. While out-of-State sources contribute to air pollution in the State of Vermont, largely from emissions being transported to Vermont through weather systems,¹⁴ the State contains a number of significant sources of air pollution – the largest being automobiles and other fossil fuel-burning machines. Automobiles contribute to air pollution by emitting toxic and carcinogenic compounds into the air. Various steps have been taken over the last few decades to lower emissions from automobiles nationwide; however, some of those efforts have been limited in the last few years. The Town should pursue endeavors that will help encourage purchasing of energy efficient automobiles such as hybrid/electric cars.



At one point in the past, household trash burning was a significant contributor to air pollution in Underhill. As the community has become educated about trash burning's contribution to air pollution, fewer people are believed to have continued the practice. However, there are still some residents who feel trash burning a viable alternative to paying for trash removal or landfill fees. Since trash burning typically involves household burn barrels that produce low temperature fires, this results in the release of many toxic chemicals close to the ground. Burning wood debris from houses is likewise prohibited, as residual paint fumes are toxic. Illegal burning should be reported to the Vermont Department of Environmental Conservation for enforcement action. Legal burning activities include the burning of natural wood and brush piles, but require burn permits issued by the Underhill Fire Warden.¹⁵

In regard to regulating air pollution, in 1970, the United States Environmental Protection Agency (EPA) mandated that each state measure its ambient air for six "criteria" pollutants. Ambient air refers to air that is not directly at the source of pollution, but rather, the air we breathe in familiar environments, such as neighborhoods, farms, and in the marketplace. The identified six pollutants are: 1) particulate matter, 2) sulfur dioxide, 3) carbon monoxide, 4) nitrogen dioxide, 5) ozone, and 6) lead.¹⁶ These pollutants are not to be considered the only harmful pollutants, as the Vermont Air Quality and Climate Division monitors ambient air for several hundred pollutants. The six identified pollutants above; however, are considered to be the most common.



With the ever-climbing cost of energy, many people returned to heating their homes with wood in the late 1990s and early 2000s. While wood is a cost effective, renewable resource, older wood stoves likely emit more pollutants, particularly particulate matter, than the sources they have replaced. Since 1988, the EPA has required that all new stoves be equipped with catalytic converters, or other technologies, that reduce pollution emissions by 50%. In addition, newer wood stoves are more efficient, requiring a third less wood to produce the same amount of heat. In recent years, a return to electric-derived heating sources has been popular as energy efficiency measures have made them more economical.

Outdoor wood-fired boilers are a heating source that is often associated with pollution. In response, the Vermont Agency of Natural Resources adopted regulations that apply to outdoor wood-fired boilers installed after October 1, 1997. While setback and stack height requirements for these boilers were implemented, the regulation did not set any emission standards that would reduce air pollution. As popularity of this heating source increased, thus leading to a greater number of installations, complaints about emissions continued. Due to the increased popularity and sustained complaints, the Agency of Natural Resources revisited their regulations and made amendments that established

¹⁴ <https://dec.vermont.gov/air-quality/pollutants-health>

¹⁵ For strategies relating to burning, see Chapter 3 relating to energy.

¹⁶ <https://dec.vermont.gov/air-quality/pollutants-health>

two phases that pertain to particulate emission standards for outdoor wood fired boilers. The current version of the regulations includes standards for outdoor pellet-fired boilers. The Phase II particulate standard promotes the sale and installation of much more efficient and cleaner wood burning technologies.

The Energy Committee should explore methods to reduce air quality impacts while reducing energy consumption and switching to cleaner, more efficient technologies. This is discussed more in the Energy Chapter of this Plan.

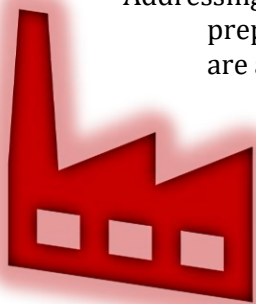
CLIMATE CHANGE

Climate models are predicting temperature increases for Vermont, and the impacts are likely to be significant. Even minor increases in average temperatures will lead to significant environmental and economic impacts. For example, among other things: increased storm events with subsequent increased stormwater runoff; loss of hardwood tree species, including sugar maples; shorter sugaring seasons; decreased water quality; and shorter ski and winter sports seasons.

Weather patterns are an integral part of town planning and development design considerations, as weather affects many variables such as: soil erosion, plant growth, air quality, stormwater runoff and flooding, groundwater storage, road and driveway maintenance, energy demand for cooling and heating, access to alternative energy sources, and the viability of weather-dependent recreation. Climate change will also have a profound impact on significant wildlife habitats and corridors, creating a need to anticipate the shift in these corridors and how that might impact conservation and development.

Underhill should begin to embrace the inevitable change that is likely to occur in the area. While more research can be performed to strategically evaluate the social, economic, and environmental impacts, and how to incorporate this in the Town's planning process, implementing existing climate change relevant policies in this Plan will help Underhill be more resilient.

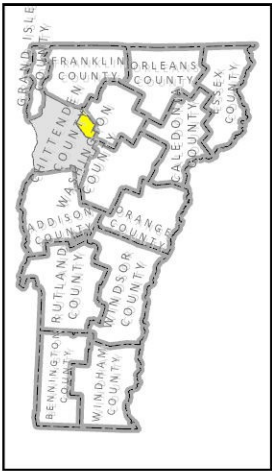
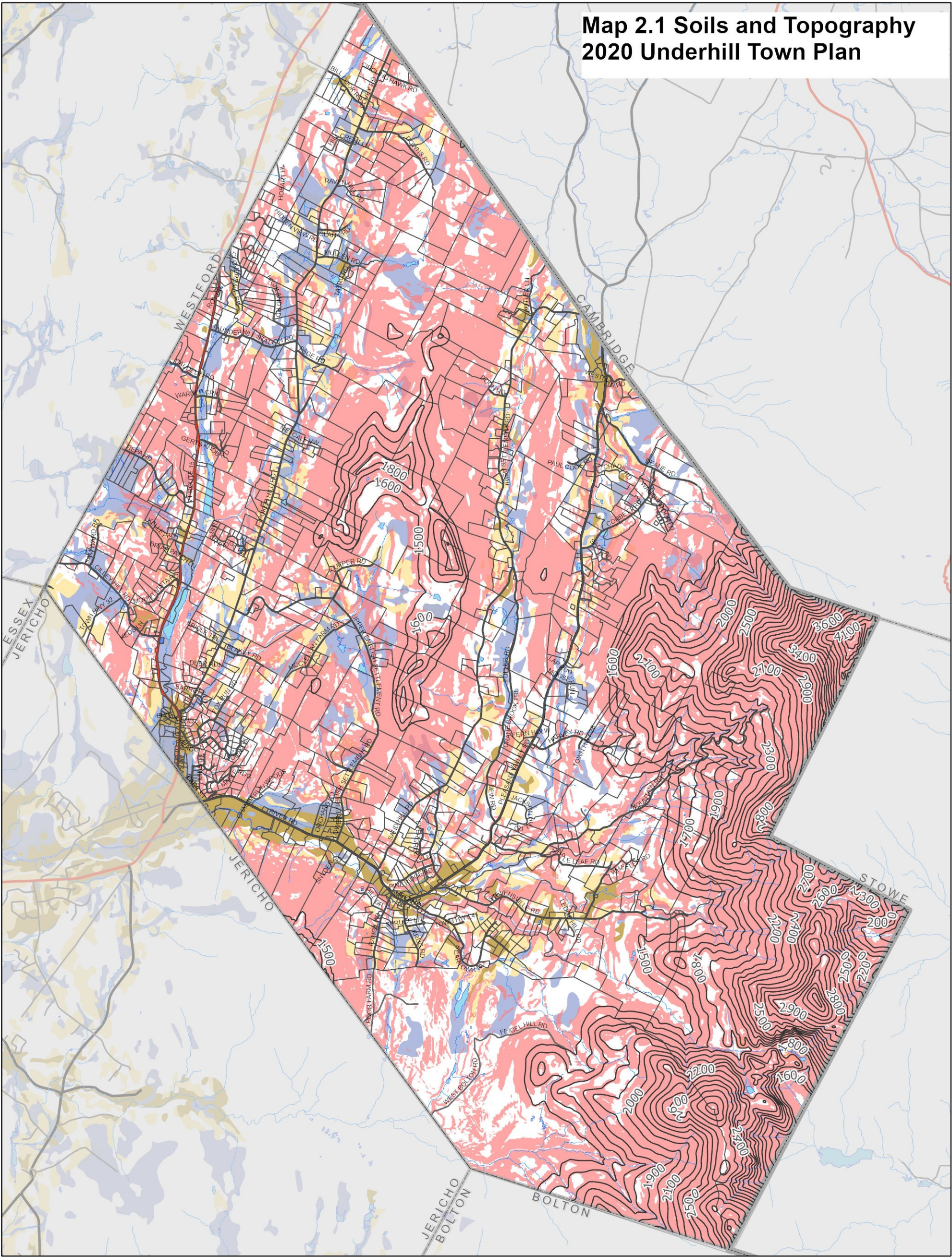
An astounding 79% of survey participants agreed that implementing policies that support the State's goal of attaining 90% renewable energy by 2050 is AT LEAST somewhat important.



Addressing climate change involves both reducing the Town's greenhouse gas emissions while preparing for the inevitable impacts from climate change. While greenhouse gas reductions are a worldwide issue, Underhill should strive to do its part in curbing the climate change and global warming crisis. An astounding 79% of survey participants agreed that implementing policies that support the State's goal of attaining 90% renewable energy by 2050 is AT LEAST somewhat important.¹⁷ Therefore, the Town should pursue endeavors that will assist and educate residents about reducing their carbon footprint, as well as reducing their impacts on air, water, soil, and plant resources. See Energy Chapter for more discussion.

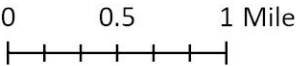
¹⁷ See Question 38 of the 2020 Underhill Town Plan Survey.

Map 2.1 Soils and Topography
2020 Underhill Town Plan



- Legend**

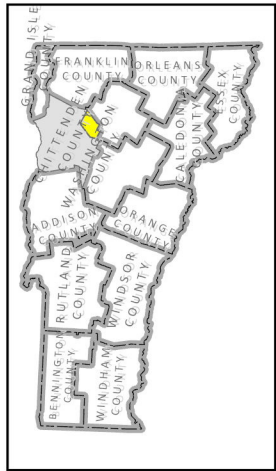
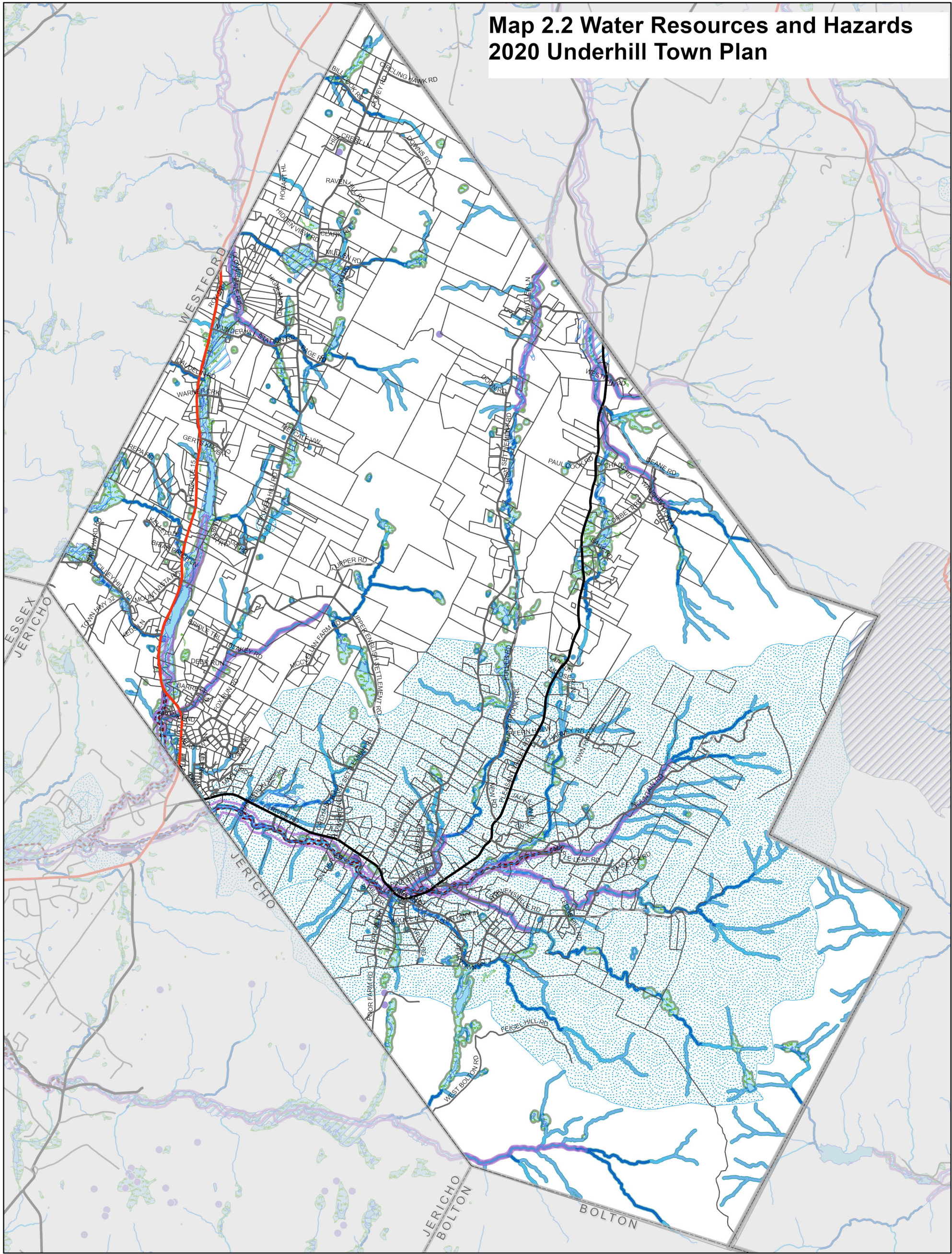
 - 2017 Tax Parcel Boundary
 - Water Body
 - Stream Centerline
 - Possible State or Local Constraint
 - Steep Slopes 15% or more
 - Hydric Soils
 - Agricultural Soils
 - Prime
 - Statewide
 - Land over 1,500 Elevation



Source: Road Centerline - E911, 2020; Surface Water - Soils-NRCS; Map created by M. Needle using ArcGIS Pro. All data is in State Plane Coordinate System, NAD 1983.

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.

Map 2.2 Water Resources and Hazards 2020 Underhill Town Plan



- Legend**
- Water Body
 - 2017 Tax Parcel Boundary
 - .2% Annual Chance Flood Hazard (500 yr. flood)
 - Ground Water Source Protection Area
 - Source Water Protection Area
 - State Known Constraints
 - Vernal Pools (Confirmed and Unconfirmed)
 - FEMA Floodway
 - FEMA Special Flood Hazard Area
 - ANR River Corridor - 8/2019
 - Small Streams
 - <.25 SQMI. drainage area
 - .25 - .5 SQMI. drainage area
 - .5 - 2 SQMI.
 - Class 2 or Advisory Wetland
 - Local Possible Constraints
 - Surface Water Setback (100 ft.)
 - Wetland Buffer (50 ft.)

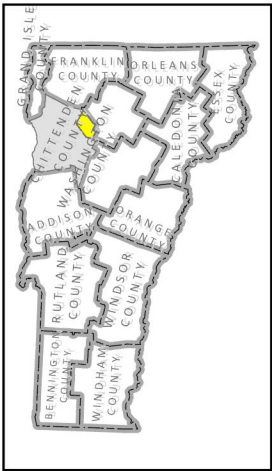
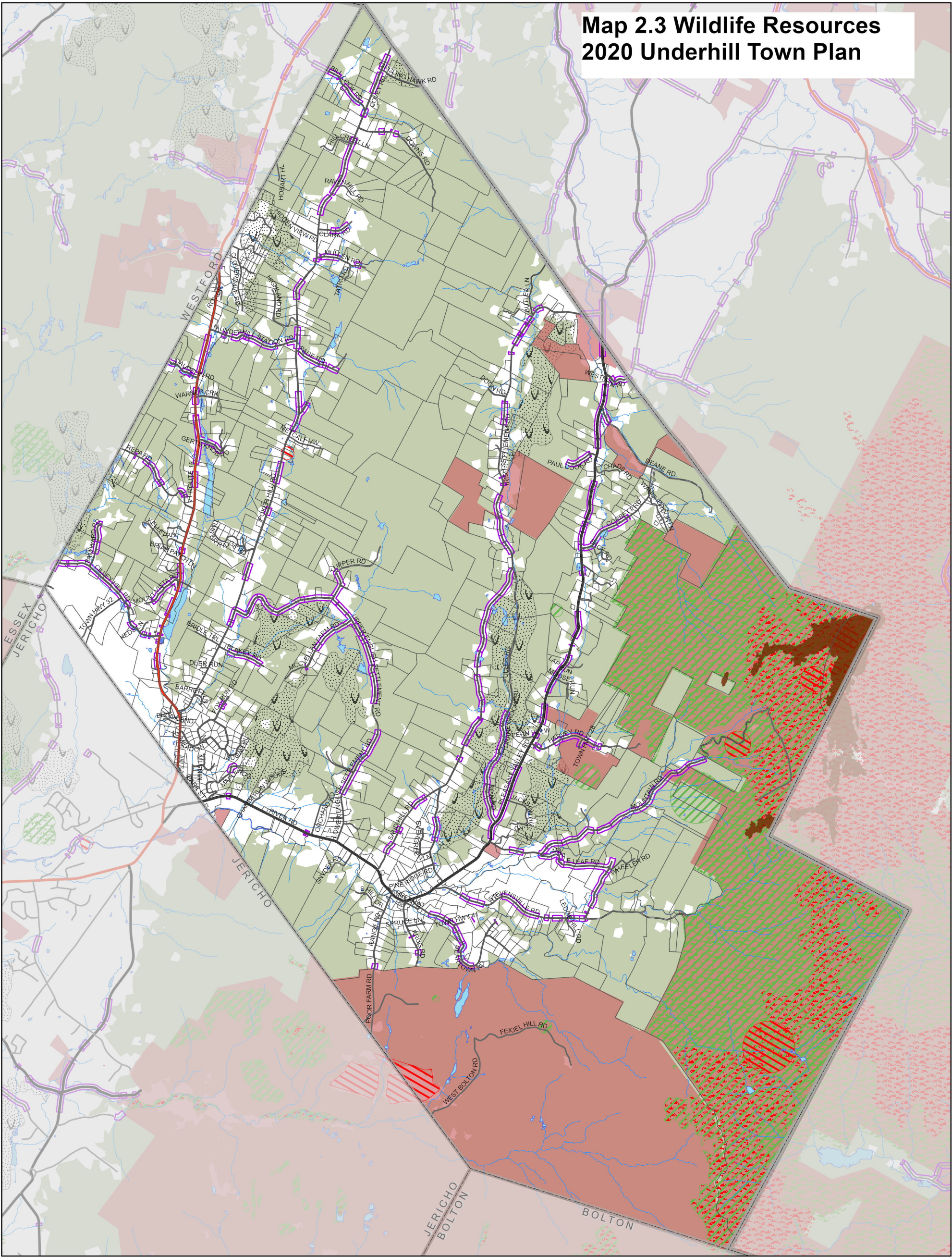
0 0.5 1 Mile



Source: Road Centerline - E911, 2020; Surface Water - Wetlands-VCGI, River Corridor(2019)-ANR; Map created by M. Needle using ArcGIS Pro. All data is in State Plane Coordinate System, NAD 1983.

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Map 2.3 Wildlife Resources
2020 Underhill Town Plan



Legend

2017 Tax Parcel Boundary

Mount Mansfield Tundra

Stream Centerline

Water Body

Highest Priority Wildlife Crossings

State Possible Constraints

Protected Land

Deer Wintering Area

Forest Blocks, Significant Wildlife Habitat Connectors(Vermont Conservation Design)

Rare Threatened Endangered Species

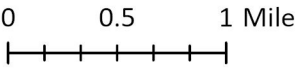
Rare

Threatened or Endangered

Significant Natural Communities

Rare

Common



Source: Road Centerline - E911, 2020; Surface Water - VHD, Mt Mansfield Tundra, 2013 VCGI; Protected Land, VCGI 7/2019; Sig. Nat Com, VCGI 1/2019; Map created by M. Needle using ArcGIS Pro. All data is in State Plane Coordinate System, NAD 1983.

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CHITTENDEN COUNTY RPC
Communities Planning Together

Document Path: D:\Projects\20\Underhill\2020TownPlanMaps.aprx 2/18/2020

Chapter 3



Photograph 3.1 – Submitted by Tim Durbrow

Energy

- GOAL 1:** Reduce greenhouse gas (GHG) emissions to help attain the State target of a 50% reduction from 1990 levels by 2028 and 75% by 2050.
- GOAL 2:** Reduce the energy consumption of Town-owned properties and vehicles and encourage Town residents and businesses to do so as well.
- GOAL 3:** Increase renewable energy production in Underhill to help attain the State goal of 90% renewable energy consumption by 2050.
-

POLICY 1: Promote energy efficiency and energy conservation practices.

Strategies:

1. Improve the energy efficiency of Town building(s) by 9% by the end of this Plan (2028).
2. Seek grant funding to support energy efficiency upgrades for Town-owned buildings.
3. Continue to educate residents and businesses about energy efficiency and conservation options that reduce their energy consumption, especially in the areas of thermal and household appliance energy expenditures, through outreach programs.
4. Improve access to energy information, especially with regard to low cost, energy-saving ideas and incentives, by providing that information on the Town's website.
5. Research the feasibility of implementing a home energy reduction challenge for residents and/or businesses.
6. Promote and support improvements to Vermont Energy Dashboard¹⁸ to reflect actual local data.
7. Investigate the Vermont Climate Pledge Coalition.
8. Continue to promote the use of the residential building energy standards (RBES) and commercial building energy standards (CBES) by distributing code information to permit applicants.

POLICY 2: Promote and encourage the development of renewable, low-carbon energy sources in Underhill.

Strategies:

1. Encourage the colocation of solar generation and power storage facilities, especially at critical community locations like fire stations, schools, and churches. .
2. Renewable energy generation facilities and associated infrastructure must be located to avoid field verified State & local known constraints, as well as minimize impact to State & local possible constraints (see Table 3.1).
3. Create and maintain a data tracking program that will enable the Town to monitor public and private energy production and energy consumption, and to help confirm if the Town is meeting the interim renewable energy production goal set forth in Table 3.17.
4. Enable residential energy production siting or energy distribution for renewable sources, which should include small-scale wind generation, specifically a small distributed wind energy system consisting of a single turbine producing up to 100 kW.
5. Adopt a visual screening ordinance for commercial ground-mounted solar generation facilities that exceed 15kW AC in accordance with 30 V.S.A. § 248(b)(B).
6. In addition to Strategy 4 directly above, consider drafting solar screening design guidelines for the Mt. Mansfield Scenic Preservation District.
7. Identify and encourage the development of specific locations and/or previously impacted areas (e.g. gravel pits, etc.) as preferred sites for net metering eligibility for renewable energy generation.
8. Continue to identify locations for solar power, as well as identifying other renewable energy options, especially for Town buildings as a "Lead By Example" effort.
9. Identify landowners interested in siting residential solar arrays on their property through outreach programs.
10. Provide landowners interested in installing commercial-scale solar power on open land with information on mitigating impacts to pollinators.

¹⁸ (<https://www.vtenergydashboard.org/my-community/underhill/progress>)

11. Identify opportunities to facilitate the group purchasing of renewable energy production equipment or installation services (i.e. “community installations”) to lower individual costs and encourage development of renewable energy production sources.
12. Ensure that ground-mounted solar larger than 15 kW AC and wind turbines are located outside of the Underhill Flats Village Center and Underhill Center Village zoning districts.
13. Locate small distributed wind energy systems (small-scale wind generation) consisting of a single turbine producing up to 100 kW in areas with wind power generation potential such as the prime and base wind potential areas shown on Map 3.1 & Map 3.2.
- 14.

POLICY 3: Promote practices that reduce the use of public and private fossil fuel-burning vehicles.

Strategies:

1. Reduce Town equipment fuel usage by 9%.
2. Explore opportunities that would allow Underhill to utilize local road material resources to reduce the miles driven to transport such materials (e.g. extracting gravel from a site in Town).
3. Identify opportunities to replace fossil fuel-burning Town vehicles with vehicles powered by electricity or, in the case of heavy-duty vehicles, biodiesel.
4. Continue to support regional bus services as a means to reduce transportation GHG emissions.
5. Identify funding opportunities to support the purchase of Town electric or biodiesel vehicles.
6. Collaborate with adjacent towns to improve transportation options for movement between town population centers, including through Chittenden Area Transportation Management Association (CATMA).
7. Identify and upgrade local roadways to include bike lanes, especially between Underhill Center and Underhill Flats.

POLICY 4: Encourage use of all electric (100%) and hybrid vehicles.

Strategies:

1. Identify and implement locations, as well as funding opportunities, for electric vehicle charging stations to encourage the use of electric or hybrid vehicles.
2. Provide information about the costs and benefits of electric vehicles to residents (e.g., public presentations/forums, Front Porch Forum, Mountain Gazette, Town Website, etc.).
3. Review the Town’s zoning regulations and modify as appropriate to support the inclusion of EV charging capacity within the development review process.

POLICY 5: Reduce GHG emissions.

Strategies:

1. Work with the Regional Planning Commission to understand the status and trends of GHG emissions and reductions.
2. Continue to educate residents about GHG and targeted reductions through outreach programs.
3. Educate residents about the emissions associated with brush pile and yard waste burning and encourage the composting of that matter, as well as other organic matter.
4. Educate residents and businesses about the ability to reduce fossil fuel use for heating by partnering with utilities and energy vendors to promote technologies such as advanced wood heating systems, cold climate heat pumps, and geothermal systems.

POLICY 6: Encourage forest land conservation and management to increase natural carbon uptake and storage (carbon sinks).

Strategies:

1. Increase outreach to landowners on the role of forests in reducing GHG and carbon storage.
2. Review and revise (as appropriate) open space contracts to promote the conservation of valuable

- forests for GHG reduction and carbon storage.
3. Educate residents regarding the negative effects of harvesting trees for the production of large-scale biomass fuel for electricity.

BACKGROUND

Energy consumption and its impact on rates of global climate change has been a topic of increasing importance, not only in the Town of Underhill, but statewide, nationwide, and worldwide. In response, the Underhill Selectboard created the Energy Committee with the mission of researching energy issues as they relate to the Town, as well as making recommendations for changes and best practices to both the Planning Commission and the Selectboard. When making recommendations, the Energy Committee considers the following guiding principles:

- Reducing greenhouse gas emissions;
- Reducing energy use;
- Improving energy efficiency;
- Energy affordability;
- Energy equity; and
- Expanding the use of renewable energy, especially in the heating and transportation sectors.

Since the implementation of the 2015 Town Plan, the Energy Committee has undertaken energy efficiency initiatives such as installing energy efficient heating and cooling systems in Town Hall and installing LED lighting in roadside light fixtures. In addition, the Energy Committee has also held a series of educational workshops for Underhill residents pertaining to weatherization opportunities and solar energy systems; participated as a member of the tri-town alternative transportation committee to enhance alternative transportation; and launched a website to improve information availability to residents.

In 2016, energy planning across the State was significantly impacted by the Department of Public Service's (PSD) update to the Vermont Comprehensive Energy Plan (CEP) and the passage of Act 174. The update to the CEP was a coordinated effort of many state agencies to advance energy-related policy objectives in multiple areas.¹⁹ Amongst the many goals of the CEP, one of the most prominent was to provide a framework, along with specific plans and recommendations, to achieve 90% energy consumption from renewable energy sources by 2050.²⁰ Municipal and regional plans are expected to be consistent with the established goals therein.²¹

Also in 2016, with the CEP in mind, the Vermont Legislature passed Act 174, which established a new set of planning standards for municipal governments and regional planning commissions to implement, which would afford those entities more weight during the Section 248 energy siting process for energy generation.²² Instead of "due consideration," a Town that obtains an enhanced energy plan certification will be afforded "substantial deference."

Energy consumption in the Town of Underhill . . . is mainly centered around three areas: heating, electricity, and transportation.

With the implementation of the CEP and Act 174, over the past few years, energy planning in the Town of Underhill has shifted dramatically to address the policies and goals enumerated in the CEP and Act 174, which has been a coordinated effort between the Underhill Planning Commission & Underhill Energy Committee, as well as the Chittenden County Regional Planning Commission. The efforts undertaken by the Planning Commission and Energy Committee to support the 90% renewable energy by 2050 goal are supported by Underhill residents, with a resounding 348 of 438 survey participants advising that

¹⁹ https://publicservice.vermont.gov/publications-resources/publications/energy_plan

²⁰ https://outside.vermont.gov/sov/webservices/Shared%20Documents/2016CEP_Final.pdf

²¹ <https://publicservice.vermont.gov/content/act-174-recommendations-and-determination-standards>

²² <https://publicservice.vermont.gov/content/act-174-recommendations-and-determination-standards>

this goal is at least somewhat important to them.²³

ENERGY EQUITY

Energy equity is guided by four nationwide principles: affordable, clean, resilient, and inclusive energy. In Vermont, the Global Warming Solutions Act of 2020 (Act 153) establishes a Just Transitions Subcommittee that is directed to recommend strategies that consider the disproportionate impacts of climate change on and reduce energy burdens for low-income and marginalized Vermont communities. Underhill recognizes the importance of furthering energy equity as it pursues its energy and community development goals. To achieve this, it will incorporate the guiding principles of energy equity into its energy planning and development process. Those principles and some examples of their applicability in Underhill include:

Affordable: Affordability disproportionately affects lower-income Vermonters in 2 ways: (1) Through higher energy bills, mostly heating and transportation, and (2) Through impeding access to the tools to mitigate those direct costs (e.g. home weatherization), individual renewable energy installations, and more efficient or electric vehicles.

Clean: Lower-income Vermonters are often disproportionately exposed to the pollution effects of fossil-fuel-based energy systems. In particular, indoor air quality is poorest in households with older heating equipment, especially kerosene-based heaters.

Resilient: The effects of power outages can be catastrophic and particularly so in poorly constructed or weatherized homes. Specialized tools such as home battery back-ups, individual renewable generation, or even generators impose a burden on those with limited budgets. The impacts of climate change, e.g., flooding and storms, often disproportionately impact more vulnerable populations. A more resilient system underlying the community such as micro-grids can mitigate this vulnerability.

Inclusive: Vulnerable communities often have less recourse to energy improvements. Renters, even if they can afford improvements, often have little control over their implementation and there is reduced incentive for non-resident owners to invest in someone else's savings.

Underhill in its energy planning and larger development posture must recognize these equity issues and pursue policies to mitigate them.

ENERGY CONSUMPTION

Energy consumption in the Town of Underhill, similar to other communities, is mainly centered around three areas: heating, electricity, and transportation. While Underhill follows conventional patterns of energy use, such as fossil fuel-based heating and transportation, a concerted effort is being made to promote energy efficient practices, while also promoting energy sources that are secure, renewable, affordable, and have minimal environmental impact. Energy conservation and renewable energy opportunities include, but are not limited to: building weatherization; electric vehicles and alternative transportation; a small distributed wind energy system (small-scale wind generation) consisting of a single turbine producing up to 100 kW at appropriate locations; air source heat pumps; geothermal energy; and solar photovoltaic (PV). As technology advances and residents continue to implement energy efficiency strategies discussed below, energy consumption is expected to continue to decrease.

ENERGY EFFICIENCY & FOSSIL FUEL USE REDUCTION

Energy efficiency refers to activities that reduce the amount of energy consumed by making improvements in building design or modifications to how one uses energy, such as using high-efficiency appliances, vehicles and/or engines. Promoting energy efficiency activities is the first, best, and lowest cost option for reducing energy consumption from all sources of energy. Energy efficiency, in conjunction with conservation practices, allows for a reduction in energy use, lowers energy costs, and lowers the impact on the environment from energy production

²³ See Question 38 of the 2020 Underhill Town Plan Survey.

and use.

RENEWABLE ENERGY

The passage of Act 174 in 2016 established a new set of municipal energy planning standards to adhere to should municipalities so desire. Should a municipality conform with these standards, it will obtain a “Determination of Energy Compliance,” which gives the municipality’s land conservation measures and specific policies substantial deference (greater weight) in the Section 248 process for site energy generation. The land conservation measures consider factors including renewable energy resource availability, environmental constraints, and land use and natural resource policies in this plan.

Between 2016 and 2018, the Underhill Planning Commission was tasked with identifying local constraints, which include both “known environmental constraints” and “possible environmental constraints,” within the Town’s borders. Any identified known environmental constraint signifies that all development, including renewable energy generation, is prohibited. On the other hand, the identification of a possible environmental constraint signifies that development, including renewable energy generation, must be located to minimize impacts. See Table 3.1 for a list of Underhill’s local constraints. Additionally, renewable energy development should be in accordance with the natural resource and land use policies and strategies in this plan. Going forward, the next step is to identify “preferred locations” for net-metering solar power, which will help streamline the process for siting these types of facilities. Preferred locations oftentimes are previously impacted sites, and typically include: parking lots; previously developed sites; brownfields; State regulated landfills with post-closure certification; gravel pits/quarries; on or near existing structures; or on the same parcel as, or directly adjacent to, a customer that has allocated more than 50 percent of the net-metering system’s electrical output. Additionally, a preferred site can also be a specific location designated in this plan provided that the site meets the plan’s siting criteria or is identified in a joint letter from the Selectboard, municipal and Regional Planning Commissions.

With respect to the Planning Commission’s and Energy Committee’s efforts to promote renewable energy to Underhill residents: in the summer of 2020, Green Lantern Solar Group completed construction of a 150kW solar array in the former gravel pit at 97 Beartown Road. Under the terms of a long-term lease agreement, Underhill receives lease and tax payments on this array and credits to apply to both its Town Hall and Highway Department

Table 3.1 – Known & Possible Local Constraints

State & Local Known Constraints	State and Local Possible Constraints
<ul style="list-style-type: none"> • Land over 1,500 FIE • FEMA Floodways* • DEC River Corridors* • National Wilderness Areas* • State-significant Natural Communities and Rare, Threatened, and Endangered Species* • Vernal Pools (confirmed and unconfirmed)* • Class 1 & 2 wetlands (VSWI and advisory layers)* 	<ul style="list-style-type: none"> • Slopes 15% or greater • Mt. Mansfield Scenic Preservation District • Class III Wetlands • Wetland Buffers** • Surface Waters and Buffers** • Agricultural Soils & Hydric Soils* • Act 250 Agricultural Soil Mitigation Areas • FEMA Special Flood Hazard Areas* • VT 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*
<p>*State Known Constraints are defined by various state agencies, who have the authority to participate in the Public Utilities Commission process regarding these constraints.</p>	
<p>**100 ft. from the Beaver Brook, Settlement Brook, Crane Brook, the Creek, Roaring Brook, Seymour River, Harvey Brook, Stevensville Brook, Mill Brook, Clay Brook, and Brown’s River, as measured horizontally from the top of slope. 100 ft. from all Class I wetlands and 50 ft. from Class II wetlands as measured horizontally from a delineated wetland boundary identified initially from Vermont Significant Wetland Inventory (VSWI) maps. All structures and other impervious surfaces shall be set back at least 25 ft. from naturally occurring streams and rivers as measured horizontally from the top of the bank or channel centerline where no bank is discernable.</p>	

electricity bills.

LAND USE & ENERGY



Smart growth strategies and land use planning can help mitigate and reduce a community's greenhouse emissions and energy output. Since energy plays such an important role in the Town, its connection and complex relationship with land use and transportation should be continually explored and evaluated.

The Planning Commission, in coordination with the Energy Committee, continue to work towards promoting an energy efficient and sustainable community, and, at the same time, educate Underhill residents about the importance of these efforts. Among the various land use planning measures that will aid in reducing the Town's greenhouse gas emissions, notable strategies include: reducing the number of vehicle trips and number of vehicle miles traveled by making alternatives to automobile transportation more attractive; and encouraging future growth in compact, mixed-use, walkable village centers. Other strategies are identified in other sections of this Plan, including the Transportation and Land Use chapters.

SUPPLEMENTAL INFORMATION: ENERGY ANALYSIS

This supplemental energy analysis is intended to support Underhill's "Enhanced Energy Plan," which is needed to advance the State's energy goals, and, at the same time, attain a plan that will be afforded "substantial deference" in a Section 248 process for site energy generation. The State's energy goals are:

- To obtain 90% of all energy across all sectors (transportation, heating and electricity) from renewable sources by 2050, with interim goals of 25% renewable by 2025 and 40% renewable by 2035;
- To reduce total energy consumption per capita by 15% by 2025, and by more than one-third by 2050;
- To weatherize 25% of homes by 2020; and
- To reduce greenhouse gas emissions by 50% from 1990 levels by 2028, and 75% by 2050.

With the support of the Chittenden County Regional Planning Commission, the data provided below: outlines Underhill's current energy consumption and sets targets for advancing the State's 2050 goals for energy use pertaining to heating, transportation, and electricity; and sets targets for the State's 2050 goals for renewable energy generation. Intermediate targets for 2025 and 2035 have been included as checkpoints to help the Town monitor progress towards achieving its 2050 targets.

The targets noted below in this supplemental energy analysis are representational only and are to be used for planning purposes only. They are not to be used to assess whether energy generation projects, utilities, or municipalities are meeting energy goals. To verify or confirm actual conditions for each scenario represented below, a more in-depth analysis/evaluation should be performed as errors or omissions may exist in this data.

Part 1 – Current Energy Use

The data contained within this supplemental energy analysis is from various sources and represents actual current consumption and generation, rather than estimates from the Long-Range Energy Alternatives (LEAP) model found in Part 2 pertaining to future use targets.

Transportation Energy

In 2015, Underhill contained approximately 2,404 fossil fuel-burning, light-duty vehicles; while in 2017, Underhill had 14 electric light duty vehicles registered.

While subsequent data suggests

that 18 electric vehicles are registered in Underhill, 42 survey participants answered that they already owned an electric or hybrid vehicle.²⁴ Even assuming the applicable 42 survey participants share a household with another, thus creating duplication, there are at least 21 electric vehicles registered in Underhill, continuing the trend of more Underhill residents purchasing electric vehicles. Table 3.2 provides an overview of the passenger vehicle fleet in Underhill classified by fuel source, and serves as a proxy for transportation energy use (note, the number of electric vehicles includes all electric and plug-in hybrid vehicles).

Table 3.2 - Current Underhill Transportation Energy Use

Fossil Fuel-Burning Light Duty Vehicles (2015)	2,404 Vehicles
Electric Light Duty Vehicles (2017)	14 Vehicles

Sources: Drive Electric Vermont, DMV

Thermal Energy

Underhill is served by Vermont Gas in the Underhill Flats Village Center area; however, outside of the Vermont Gas service area, Underhill residents rely on delivered fuels for space heating such as fuel oil, wood, kerosene, or propane. Tables 3.3 and 3.4 illustrate the different methods of heating in the Town of Underhill.

Table 3.3 – Number of Homes Heating with Delivered Fuels, 2017

Heating Source	# of Homes	% of Homes	Margin of Error
Fuel Oil & Kerosene	515 Homes	44%	±76
Propane	256 Homes	22%	±62
Wood	273 Homes	23%	±54
Total	1,044 Homes	89%	+112

Sources: American Community Survey 2011-2017 5-Year Estimate

Table 3.4 – Current Thermal Energy Use from Natural Gas, 2016 & 2017

	2016	2017	2018
Total Residential Natural Gas Consumption (MMBtu)	108,714	103,787	124,873
Percentage of Municipal Natural Gas Consumption	93%	93%	93%
Total Commercial/Industrial Natural Gas Consumption (MMBtu)	8,149	7,721	9,245
Percent of Municipal Natural Gas Consumption	7%	7%	7%
Total Municipal Natural Gas Consumption	116,863	111,507	129,353

Source: Vermont Gas, 2019

Weatherization

One of the State's energy goals is weatherizing 25% of homes by 2020. Of the 1,231 existing housing units in Underhill (as of 2016), 308 homes would need to be weatherized to achieve the 25% goal. At the end of 2017, 200 Home Performance with ENERGY STAR® projects have been completed. The aforementioned numbers do not consider those homes that have been weatherized by the low-income weatherization program (13 since 2012) and those in progress (2). At the time this Plan was written, the total number of homes that will have been weatherized by the end of 2020 remains to be seen.

²⁴ See Question 43 of the 2020 Underhill Town Plan Survey.

Table 3.5 – Residential Energy Efficiency Projects

	2014	2015	2016	2017	2018	Total
Home Performance with Energy Star® Energy Audit	13	13	15	3	5	49
Total Residential Projects (includes Home Performance with Energy Star® projects)	30	65	68	67	113	343

Source: Efficiency Vermont, July 2019

Efficiency Vermont, the best available data source for home weatherization, only monitors home weatherization programs done through the Home Performance with Energy Star® (HPwES) program and reports energy audits.

HPwES is a comprehensive whole-house approach to diagnosing and addressing thermal and health/safety issues in the home to ensure a more energy efficient, comfortable, safe, and healthy home.

To capitalize on the HPwES program, a resident is first offered a home energy audit, which measures the leakage rate of a home in order to quantify the thermal performance -thereby informing the types of retrofit measures needed to complete a project. A project entails the completion of one or more energy efficient measures at the customer's physical location as a result of the aforementioned audit. A customer can be associated with one or more projects, and, in some cases, a project may be associated with multiple customers. Unfortunately, the data obtained from Efficiency Vermont does not capture "do-it-yourself" projects, nor does the data capture projects outside of the HPwES program. Table 3.5 indicates the number of energy efficiency projects completed since 2014, noting that that total number does not reflect the number of homes weatherized.

Electricity

Estimates of electricity consumption trends and savings by residential and commercial/industrial sectors in Underhill is shown in Tables 3.6, 3.7 and 3.8 below:

Table 3.7 – Annual Electric Savings, 2015-2018

Total Electric Savings (MWh)	2015	2016	2017	2018	Total
Residential	259.4	203.1	100.7	146.6	709.8
Commercial & Industrial	54.3	82.8	57.5	84.1	278.7
Total	313.7	285.9	158.2	230.7	988.5

Source(s): Efficiency Vermont, July 2019

Table 3.8 – Annual Cost Savings, 2015-2018

Total Customer Cost Savings (\$\$)	2015	2016	2017	2018	Total
Residential	\$ 46,179	\$ 38,667	\$ 47,073	\$ 41,449	\$ 173,368
Commercial & Industrial	\$ 7,950	\$ 12,603	\$ 8,186	\$ 12,539	\$ 41,278
Total	\$ 54,129	\$ 51,270	\$ 55,259	\$ 53,987	\$ 214,645

Source(s): Efficiency Vermont, July 2019

Current Renewable Energy Generation

As of July 2019, the total renewable generation capacity in Underhill is approximately 1.24 MW, as shown in Table 3.9. This capacity results in approximately 1,377 MWh of electricity generation per year. Of the documented renewable electricity generation sites on the Community Energy Dashboard, which includes solar, wind, hydroelectric, biomass, etc.; solar energy is the only registered renewable energy source within Town.

Table 3.9 – Existing Renewable Electricity Generation

	Sites	Power (MW)	Energy (MWh)
Solar	164	1.24	1,377
Wind	0	0	0
Hydroelectric	0	0	0
Biomass (Wood)	0	0	0
Other	0	0	0
Total	164	1.24	1,377

Source: Community Energy Dashboard, July 2019

Part 2 – Future Energy Targets

The future energy targets contained within this Plan are derived from the Long-Range Energy Alternatives Planning (LEAP) analysis for Chittenden County, which was completed by the Vermont Energy Investment Corporation (VEIC). LEAP is an accounting framework for Chittenden County and its municipalities showing one possible path to meet the State's energy goals required for enhanced energy plans.

The LEAP analysis aggregates existing energy use data and then assists in forecasting the demand for energy and sources of energy over time based on a set of anticipated economic and policy changes (e.g. demographic projections are one component of projecting future energy use). This analysis is well suited for examining how an energy system could evolve over time to meet certain goals – for example, Vermont's goal to attain 90% of its energy from renewable resources by 2050. These targets reflect the direction and magnitude of changes needed in order to meet local, regional, and state energy goals.

The targets established by the LEAP analysis represent only one way to achieve each municipality's energy goals, there may be other strategies that would allow each municipality to meet its goals. For example, switching some wood heating systems to heat pump systems is another viable option.

The Town of Underhill and its residents intend to work to help the State achieve its goal of 90% renewable resources by 2050. One example of the action the Town has already taken is the pending installation of a solar array on Beartown Road. In addition, the Town recognizes that other opportunities to reduce fossil fuels exist and will continue to explore the feasibility and implementation of such opportunities. The Town also recognizes its potential role in promoting more fuel-efficient vehicles that are less dependent on fossil fuels. Particularly, the Town should continue to explore the purchasing of bio-diesel equipment, where feasible, as well as explore options for electric vehicle charging stations. The installation of these charging stations could potentially lead to increased use of fuel-efficient vehicles in Town.

The Town also recognizes its role in encouraging fossil fuel reduction and has developed the strategies above, which focus on educating and ensuring the proper resources are readily available to residents. Implementing the aforementioned goals will require research, and could potentially include creative ideas such as test drive days for electric vehicles, home energy reduction challenges, encourage swap programs (and similar programs) for heating appliance (such as swapping old wood stoves to advanced wood heating stoves, geothermal, and/or cold climate heat pumps), etc. Specific information pertaining to the Town's goals, and the related data measuring progress towards achieving those goals, is outlined below.

Transportation Energy Targets

The transportation energy targets for the Town of Underhill outlined in Table 3.10 represent an ambitious electrification of the transportation sector. This will necessitate a substantial increase in the amount of renewable energy used to power passenger vehicles. To meet the energy goals, transportation energy from light-duty vehicles will need to decrease by 72% prior to 2050. Achieving this goal will primarily consist of converting fossil fuel vehicles to efficient electric vehicles. Based on the LEAP model, to realize this reduction, 89% of passenger vehicles in the Town will need to be electric. The electrification of light-duty vehicles will lead to a dramatic increase in electricity usage, but at the same time, a decrease in gasoline consumption. With respect to heavy-duty vehicles, transitioning to biodiesel as the primary fuel source is the principal strategy. To achieve the transportation energy target for heavy-duty vehicles, 96% of the fleet vehicles would need to be converted by 2050.

Table 3.10 – Future Transportation Energy Use Targets (2025-2050)

	2025		2035		2050	
Total Light Duty Transportation	141,728 MMBtu		89,775 MMBtu		39,128 MMBtu	
Light Duty Electricity	1,890 MMBtu		13,028 MMBtu		27,495 MMBtu	
Light Duty Electricity (% of Vehicle Fleet)	6%		41%		89%	
Light Duty Biofuel Blended* Energy	139,838 MMBtu	(94%)	76,748 MMBtu	(59%)	11,633 MMBtu	(11%)
Heavy-Duty Energy Use from Biodiesel	33%		58%		96%	
Heavy-Duty Energy Use from Fossil Fuels	67%		42%		4%	

*Measurement of biofuels blended with fossil fuels (e.g. gasoline containing a percentage of ethanol)

Source(s): VTrans, LEAP Model

Thermal Energy Targets, Residential Sector

To allow the Town to meet the State's energy goals, thermal energy use in Underhill residences is targeted to decrease by 41% from 2025 to 2050, Residential buildings are anticipated to reduce the amount of energy used for space heating as an increased number of buildings utilize weatherization and heating-efficiency technology. To achieve the aforementioned energy saving target, 100% of the residences in Underhill will need to be weatherized

Table 3.11 – Future Residential Thermal Energy Use Targets (2025-2050)

	2025	2035	2050
Total Residential Thermal	103,340 MMBtu	87,620 MMBtu	60,665 MMBtu
Energy Saved by Weatherization	4,824 MMBtu	13,176 MMBtu	41,241 MMBtu
% of Residences Weatherized	14%	36%	100%
Energy Use from Heat Pumps	6,698 MMBtu	13,780 MMBtu	20,203 MMBtu
% of Residences Using Heat Pumps	18%	37%	60%
Energy Use from Wood Heating	18,977 MMBtu	18,995 MMBtu	16,690 MMBtu
% of Residences Using Wood Heating	14%	14%	14%

Source(s): LEAP Model, Department of Public Service

by 2050, and, at the same time, the number of homes relying on heat pumps will need to increase to at least 60%. Heat pumps are powered by electricity and are compatible with increasingly decarbonized sources of renewable energy.

Thermal Energy Targets, Commercial Sector

By 2050, a 16% reduction in the total thermal energy usage of the commercial and industrial sectors in Town is estimated to achieve the outlined targets in Table 3.12. The attainment of these goals will be primarily achieved through weatherization and the use of more efficient heating technologies, while also assuming that renewable sources of heat will become more common as time progresses. By 2050, we assume 49% of businesses will be using heat pumps, while 14% of businesses will be using wood heat.

Table 3.12 – Future Commercial & Industrial Thermal Energy Use Targets (2025-2050)

	2025	2035	2050
Total Commercial & Industrial Thermal	30,136 MMBtu	28,704 MMBtu	25,389 MMBtu
Energy Saved by Weatherization	1,620 MMBtu	2,246 MMBtu	5,413 MMBtu
% of Commercial & Industrial Establishments Weatherized	25%	27%	47%
Energy Use from Heat Pumps	2,444 MMBtu	4,831 MMBtu	7,217 MMBtu
% of Commercial & Industrial Establishments Using Heat Pumps	27%	44%	49%
Energy Use from Wood Heating	3,646 MMBtu	5,022 MMBtu	7,353 MMBtu
% of Commercial & Industrial Establishments Using Wood Heating	12%	13%	14%

Source(s): LEAP Model, Department of Public Service, Department of Labor

Electricity Targets

Residential and commercial electricity use is anticipated to increase by 65% between 2025 and 2050, likely as a result of the increased use of electric heat pumps and electric vehicles. While electricity will become a larger portion of the State's total energy use, overall total energy use is expected to decrease due to advances in technology (specifically, technologies becoming more efficient), as well as the fact that the use of electricity for transportation and heating is more efficient than other energy sources, such as fossil fuels.

Table 3.13 – Future Electrical Energy Use Targets (2025-2050)

	2025	2035	2050
Residential & Commercial	8,572 MWh	10,926 MWh	14,160 MWh
Industrial Only	2,772 MWh	3,597 MWh	4,828 MWh
Total	11,354 MWh	14,523 MWh	18,988 MWh
Total Electric Energy Saved	1,958 MWh	3,953 MWh	7,393 MWh
% of Residences that Increased their Electric Efficiency	30%	58%	98%
% of Commercial & Industrial Establishments that Increased their Electric Efficiency*	30%	58%	98%

Source(s): LEAP Model

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

Table 3.14 – Future Total Energy Use Per Capita Targets (Excluding Industrial Electricity Use) (2025-2050)

	2015	2025	2035	2050
Total Energy Use (MMBtu)	340,464	304,452	243,380	173,494
Population	3,064	3,144	3,193	3,344
Total Energy Use Per Capita (MMBtu)	111	97	76	52
% Reduction in Total Energy Use Per Capita Since 2015	-	-13%	-31%	-53%

Source(s): LEAP Model

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

Projected Renewable Energy Generation Potential

This section addresses potential wind and solar generation within the Town of Underhill and sets targets for additional renewable energy generation. The targets illustrated in this section of the Plan are technology neutral, i.e. Underhill can use any form of renewable generation (e.g. wind, solar, hydroelectric, etc.) to meet its goals. After much deliberation, the Town of Underhill concluded that the best way to attain its renewable energy targets, and at the same time, maintain the Town's goals, policies and strategies of this Plan, is to prohibit new large-scale wind power generation in Underhill. This decision is primarily based on Underhill's long-time prohibition of all development above 1,500 feet elevation, and the incorporation of State and local known and possible constraints in the planning process, which effectively

Table 3.15 – Land Available for Wind & Solar Generation

	Prime Potential		Base Potential	
	Acres	% of Town	Acres	% of Town
Solar	795 Acres	2%	4,487 Acres	14%
Wind	366 Acres	1%	10,139 Acres	31%

Source(s): CCRPC and the Department of Public Services

makes any development of large-scale wind unviable in Underhill. This is supported by the mapping shown on Map 3.2. Concerns about the aesthetic impact of large-scale wind power generation on the Mt. Mansfield Scenic Preservation District also factored into Underhill's decision. Therefore, large-scale wind power generation shall be prohibited in the Town of Underhill. However, small-scale wind power generation, which shall be defined as a small distributed wind energy system consisting of a single turbine producing up to 100 kW, is encouraged as a means to achieve the renewable energy generation targets within this Plan. (small-wind power generation shall be consistent with the Town's policies in Chapter 2 – Natural Resources). While large-scale wind generation is prohibited, the Town still has the means to achieve its renewable energy targets through solar power generation alone, let alone with any additional power generation from small-scale wind. For more information on how these targets were derived, please refer to the 2018 Chittenden County ECOS Plan Supplement 6 – Energy Analysis, Targets, & Methodology, available at: <http://www.ecosproject.com/2018-ecos-plan/>.

Table 3.16 – Estimated Renewable Electricity Generation Potential

	Power (MW)	Energy (MWh)
Rooftop Solar*	2.4	2,985
Ground-Mount Solar* (Prime)	99	121,934
Ground-Mount Solar* (Based)	75	91,707
Wind (Prime)	15	44,492
Wind (Base)	406	1,243,438
Biomass	Unknown	
Methane	Unknown	
Other	Unknown	

Source(s): 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.

“Prime” solar or wind areas are identified locations where models show suitable conditions for electricity generation and are not limited by any known or possible constraints identified in Table 3.1 (see above for the list of constraints). “Base” solar or wind areas are identified locations where models show the appropriate conditions for electricity generation, but also incorporate areas containing possible constraints, which must be considered during development, thus reducing the development potential of a site. The 2018 Chittenden County ECOS Plan indicates that:

“[D]evelopment should be located to avoid [S]tate and local known constraints that have been field verified, and to minimize impacts to [S]tate and local possible constraints that have been field verified.”

The land areas within Underhill that are available for wind and solar generation are based on models considering elevation, slope, and aspect of land, or the modeled wind speed. These models do not remove existing impervious surfaces, and therefore, land-based generation potential may be overestimated in some developed areas.

Table 3.17 – New Renewable Electricity Generation Targets

	2025		2035		2050	
	Low	High	Low	High	Low	High
Generation Targets – Any Technology	2,474 MWh	4,284 MWh	4,946 MWh	8,569 MWh	8,656 MW	14,995 MWh

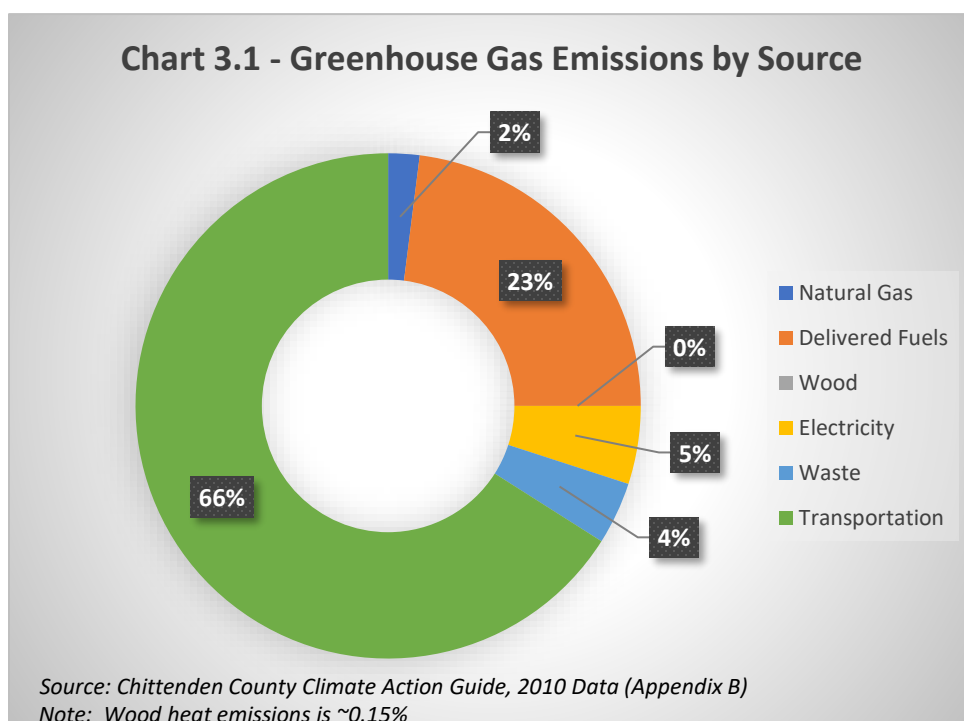
Greenhouse Gas Emissions

The Chittenden County Regional Planning Commission (CCRPC) conducted a Greenhouse Gas (GHG) Emissions

Inventory as part of the Chittenden County Climate Action Guide. The purpose of the study was to establish an understanding of the regional issues associated with climate change and provide guidance for municipalities, employers, and individuals. Depending on the type of energy used, varying amounts of greenhouse gases are emitted into the earth's atmosphere. GHG is known to be a contributor to climate change. Another purpose of the GHG Emissions Inventory is to assist in the development of energy and greenhouse gas emissions data at both the municipal level and the county level, supporting CCRPC's climate action planning process and providing a resource for municipalities to understand the source and quantity of the emissions that occur within, or relate to, their jurisdictional area.

More specifically, the GHG Emissions Inventory provides an accounting of the primary contributors of greenhouse gas emissions within Chittenden County and its municipalities for the identified 2010 base year. To note, certain data necessary to measure greenhouse gas emissions may deviate from the base year due to data availability.

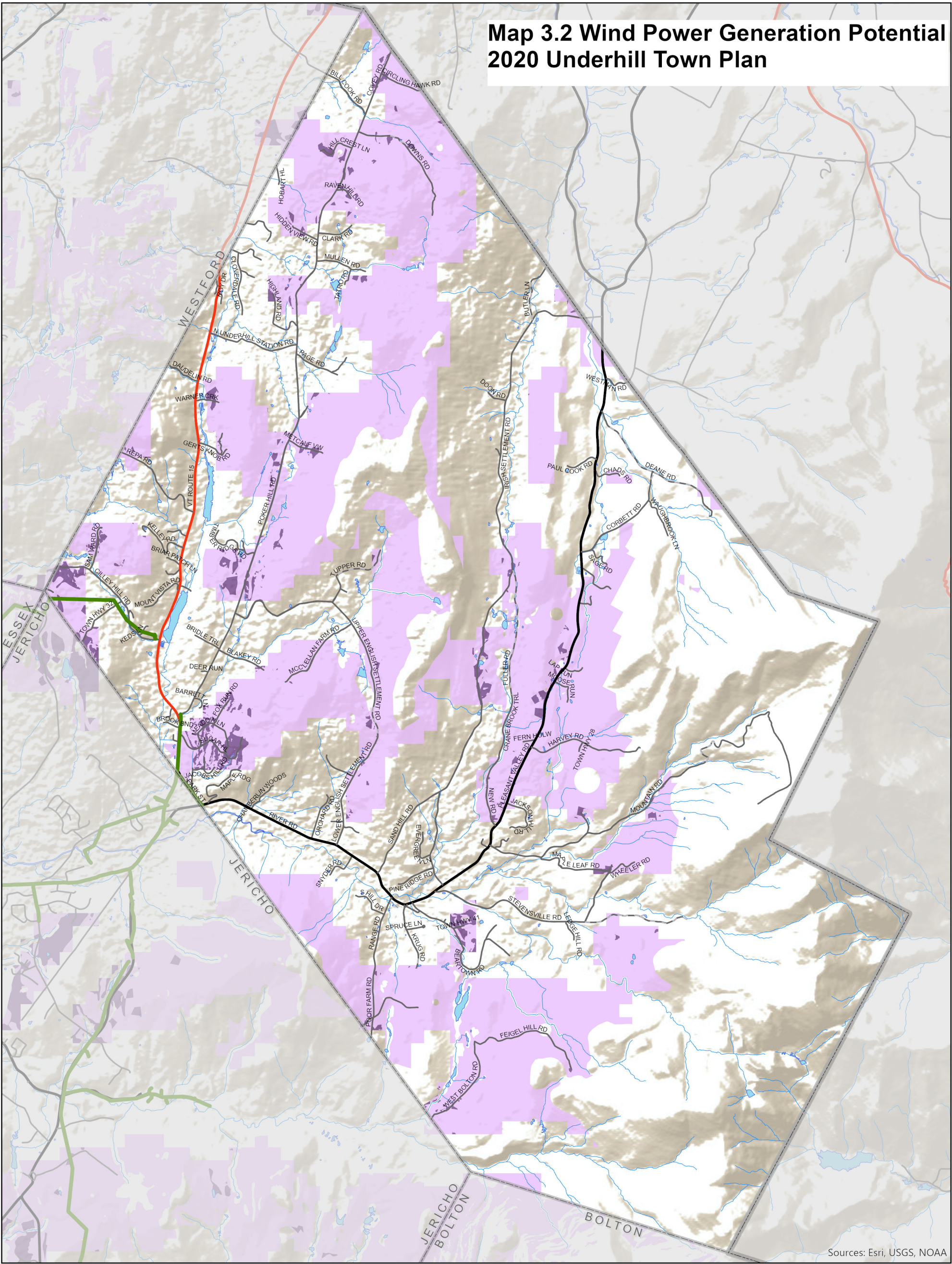
According to the GHG Emissions Inventory, the Town of Underhill emits 17,787 metric tons of carbon dioxide-equivalent greenhouse gases. The largest source of GHG emissions in Underhill are associated with the transportation sector, specifically on-road gas and diesel consumption. The second largest source of GHG emissions in Underhill are related to delivered heating fuel (specifically: fuel oil, kerosene, and propane) consumption for residential and commercial uses. These two GHG-related sources were also reported to be the two largest sources of emissions county-wide, accounting for almost 90% of the GHG emitted in Chittenden County. For a more detailed data analysis of the GHG Emissions Inventory and data collection methods, see the *Chittenden County Regional Climate Action Guide* (2014).



Since Underhill's largest source of GHG emissions is attributed to the transportation sector (gas and diesel consumption), reducing the total passenger vehicle miles traveled could contribute to a significant reduction in energy consumption. As part of this plan, the connection between transportation, land use, and energy consumption will be continuously explored with the expectation that strategies to reduce GHG emissions will be formulated and implemented by the Energy Committee, Planning Commission, and Selectboard.




The additional measures identified in this energy plan resulting in reduced total energy demand, electrification of multiple sections, and fuel switching will all result in additional and significant reductions to GHG emissions.

Map 3.2 Wind Power Generation Potential 2020 Underhill Town Plan



Sources: Esri, USGS, NOAA

Legend

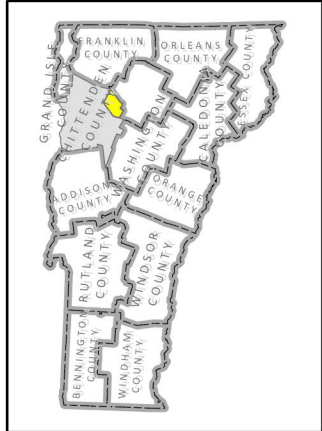
-  3-Phase Power
-  Prime Wind: Areas with high wind potential and no state/local known or possible constraints
-  Base Wind: Areas with high wind potential and a presence of state/local possible constraints

0 0.5 1 Mile

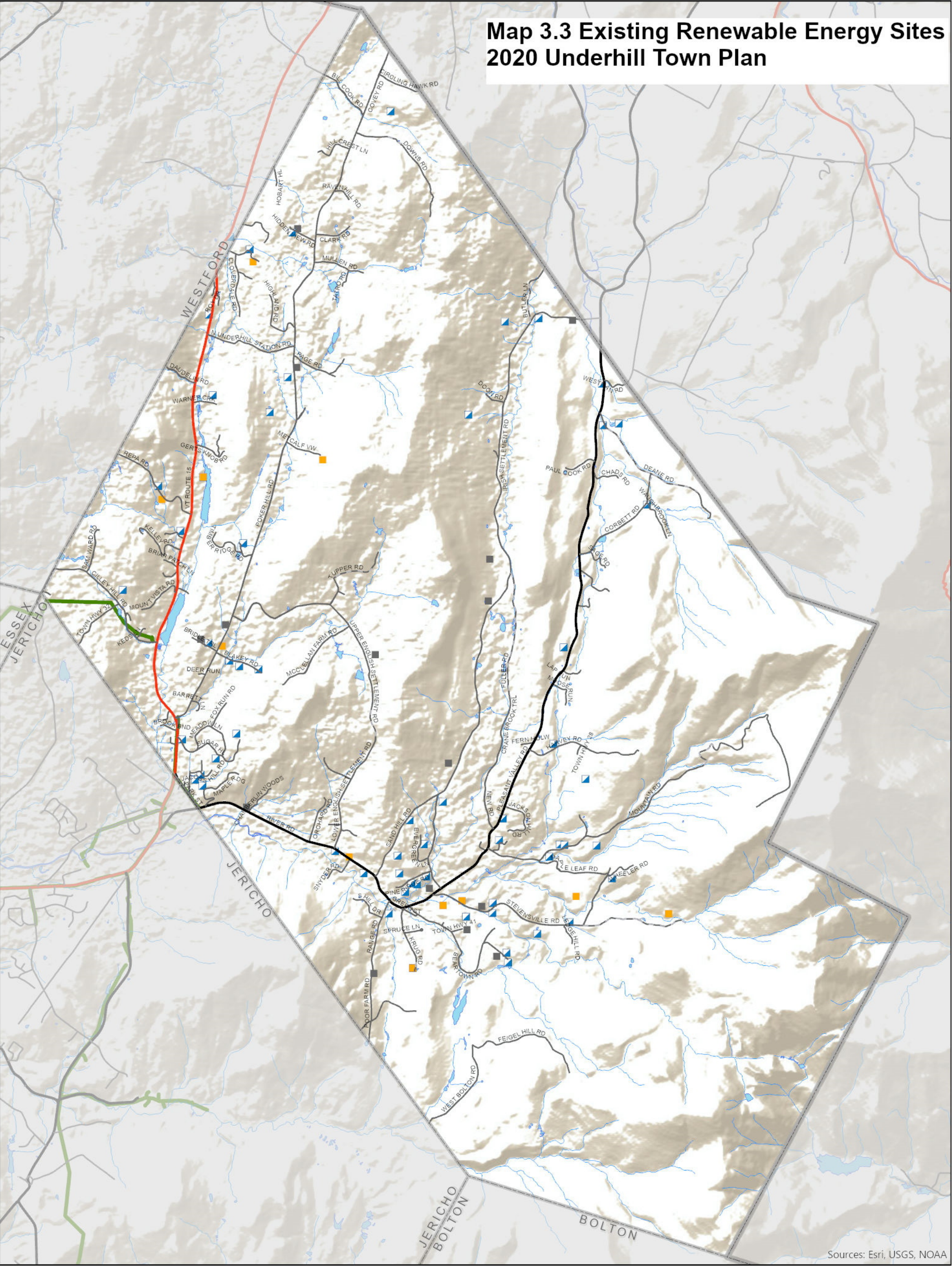
Note: This map and the corresponding data is intended to be used to inform energy planning efforts by the Town of Underhill. This map may also be used for conceptual planning as it is a basic state-wide analysis that may not be sensitive to site specific energy potential; therefore renewable energy generation potential may be possible in the white areas. The Known and Possible Constraint Maps should be consulted to aid in the planning for renewable energy generation. These maps do not take the place of site-specific investigation for a proposed facility and should not be used as "siting maps". This map does not take all 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 facility. This map shall not be used without the accompanying policies contained within the 2020 Underhill Town Plan.

Source: Road Centerline -e911 11/2019; Surface Water - VHD, 2008 (VCGI); Wind Potential, 2018-CCRPC, DPS;Map created by M. Needle using ArcGIS Pro. All data is in State Plane Coordinate System, NAD 1983.

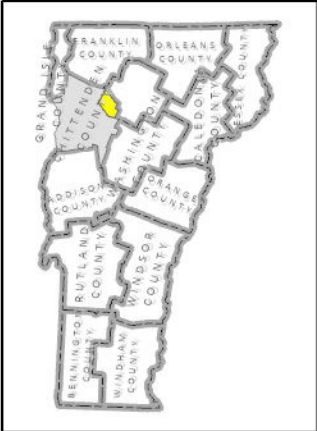
Disclaimer:
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Map 3.3 Existing Renewable Energy Sites
2020 Underhill Town Plan



Sources: Esri, USGS, NOAA



Legend

Existing Renewable Energy Sites

- Ground Mounted Solar
- Solar Hot Water
- Roof Mounted Solar
- 3-Phase Power

Note: This map and the corresponding data is intended to be used to inform energy planning efforts by the Town of Underhill. This map may also be used for conceptual planning as it is a basic state-wide analysis that may not be sensitive to site specific energy potential; therefore renewable energy generation potential may be possible in the white areas. The Known and Possible Constraint Maps should be consulted to aid in the planning for renewable energy generation. These maps do not take the place of site-specific investigation for a proposed facility and should not be used as "siting maps". This map does not take all 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 facility. This map shall not be used without the accompanying policies contained within the 2020 Underhill Town Plan.

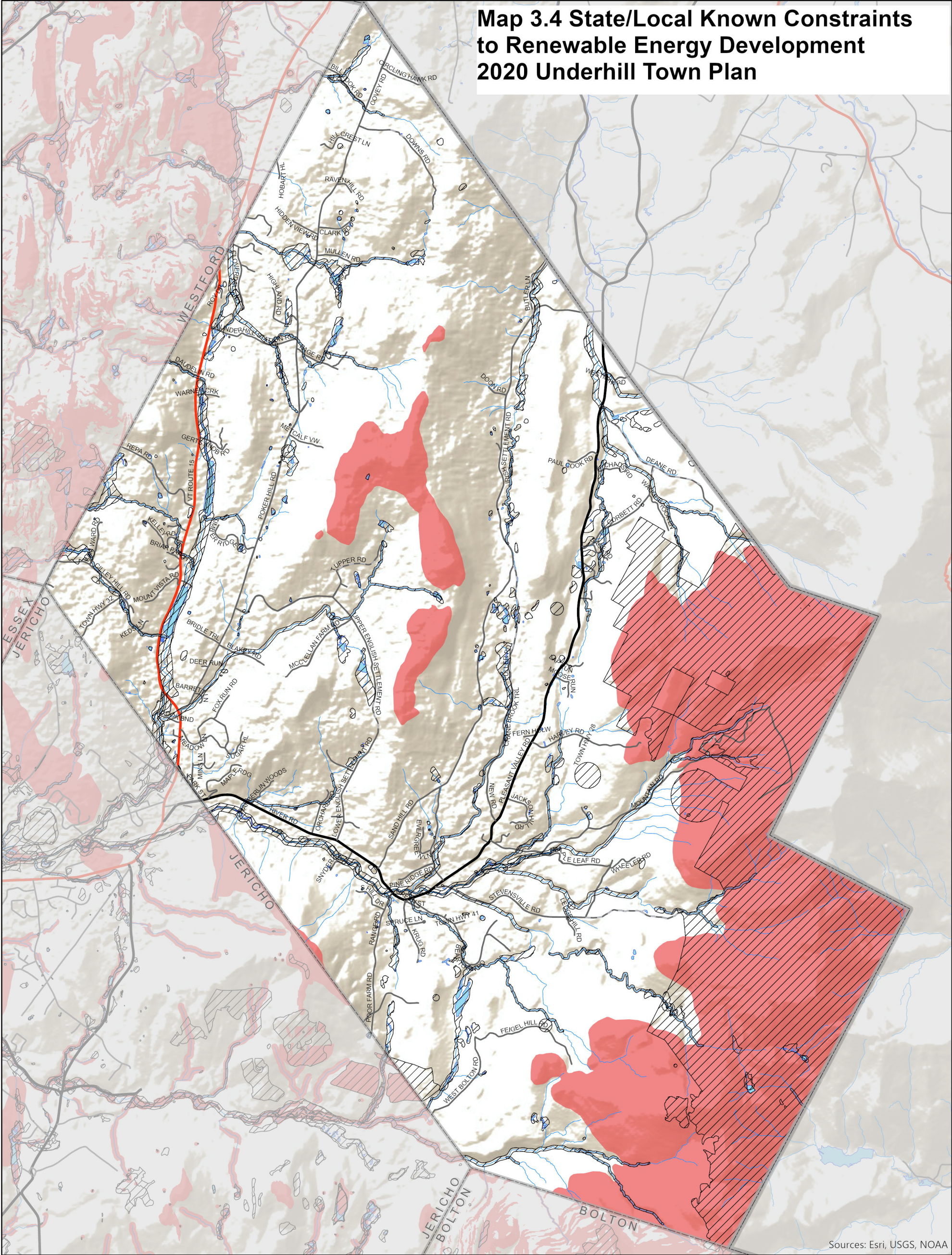
0 0.5 1 Mile



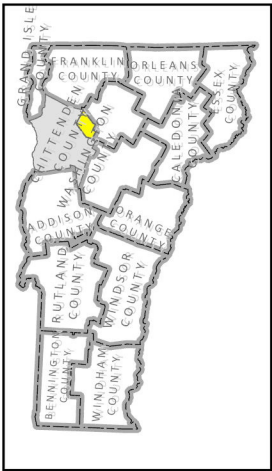
Source: Road Centerline -e911 11/2019; Surface Water - VHD, 2008 (VCGI); Existing Renewable Energy, 2017-CCRPC, DPS; Map created by M. Needle using ArcGIS Pro. All data is in State Plane Coordinate System, NAD 1983.

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Map 3.4 State/Local Known Constraints to Renewable Energy Development 2020 Underhill Town Plan



Sources: Esri, USGS, NOAA



Legend

-  Stream Centerline
-  State Known Constraints
-  Water Body
-  Local Known Constraints

For more detail on the type of resource see Chapter 2 maps and the list of known constraints in Table 3.1 in the 2020 Underhill Town Plan.

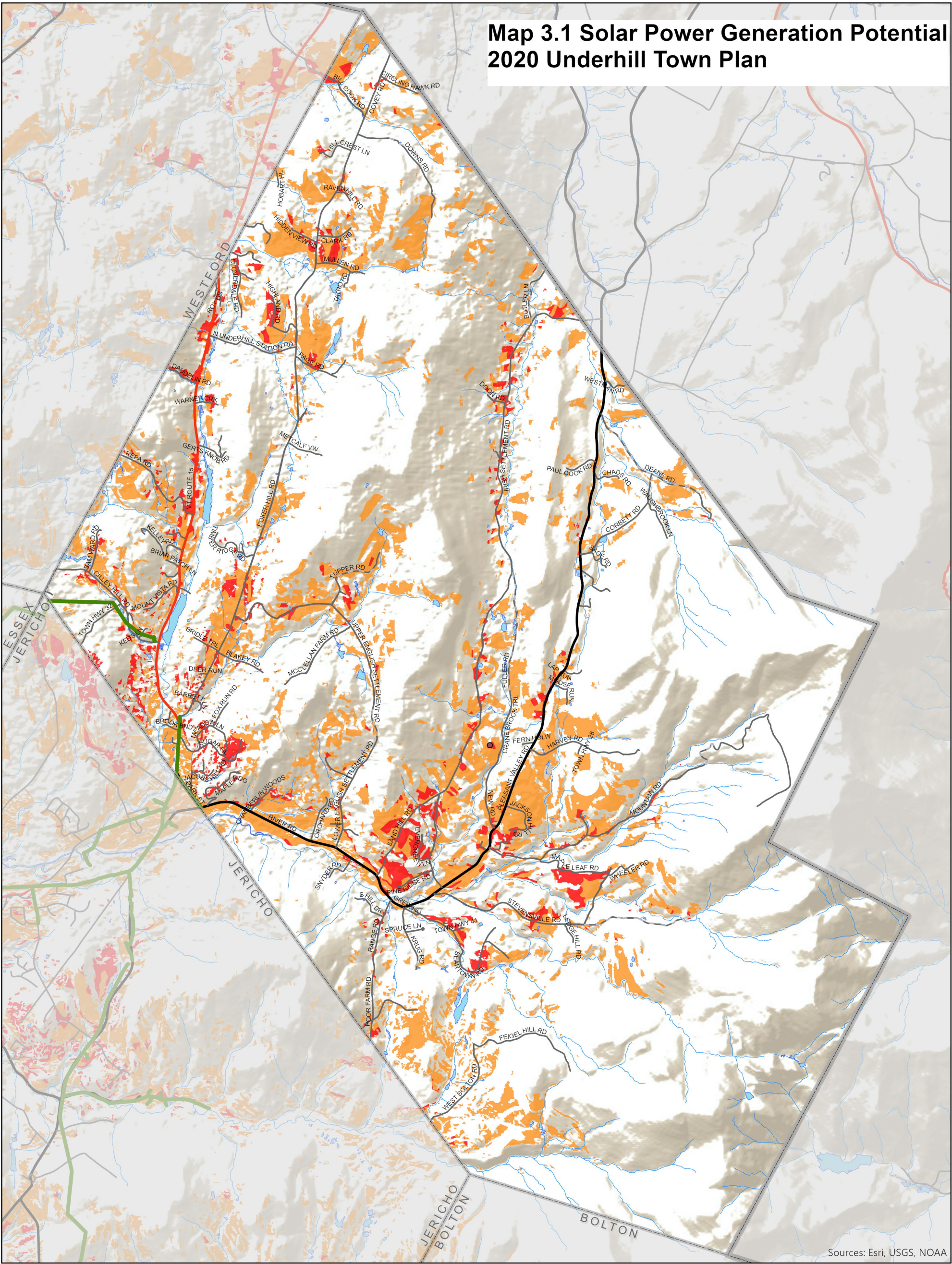
0 0.5 1 Mile



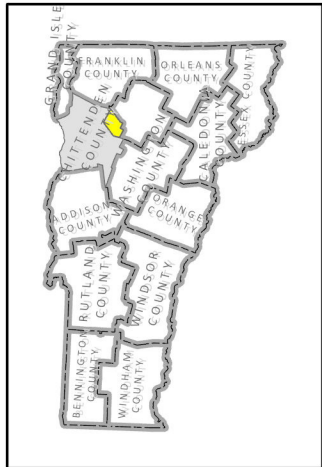
Source: Road Centerline - E911, 2020; Surface Water - VHD, Map created by M. Needle using ArcGIS Pro. All data is in State Plane Coordinate System, NAD 1983.

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Map 3.1 Solar Power Generation Potential 2020 Underhill Town Plan

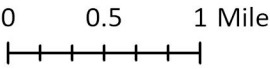


Sources: Esri, USGS, NOAA



- Legend**
- Closed Landfill Potential for Solar Net Metering
 - Prime Solar: Areas with high solar potential and no state/local known or possible constraints
 - Base Solar: Areas with high solar potential and a presence of state/local possible constraints
 - 3-Phase Power

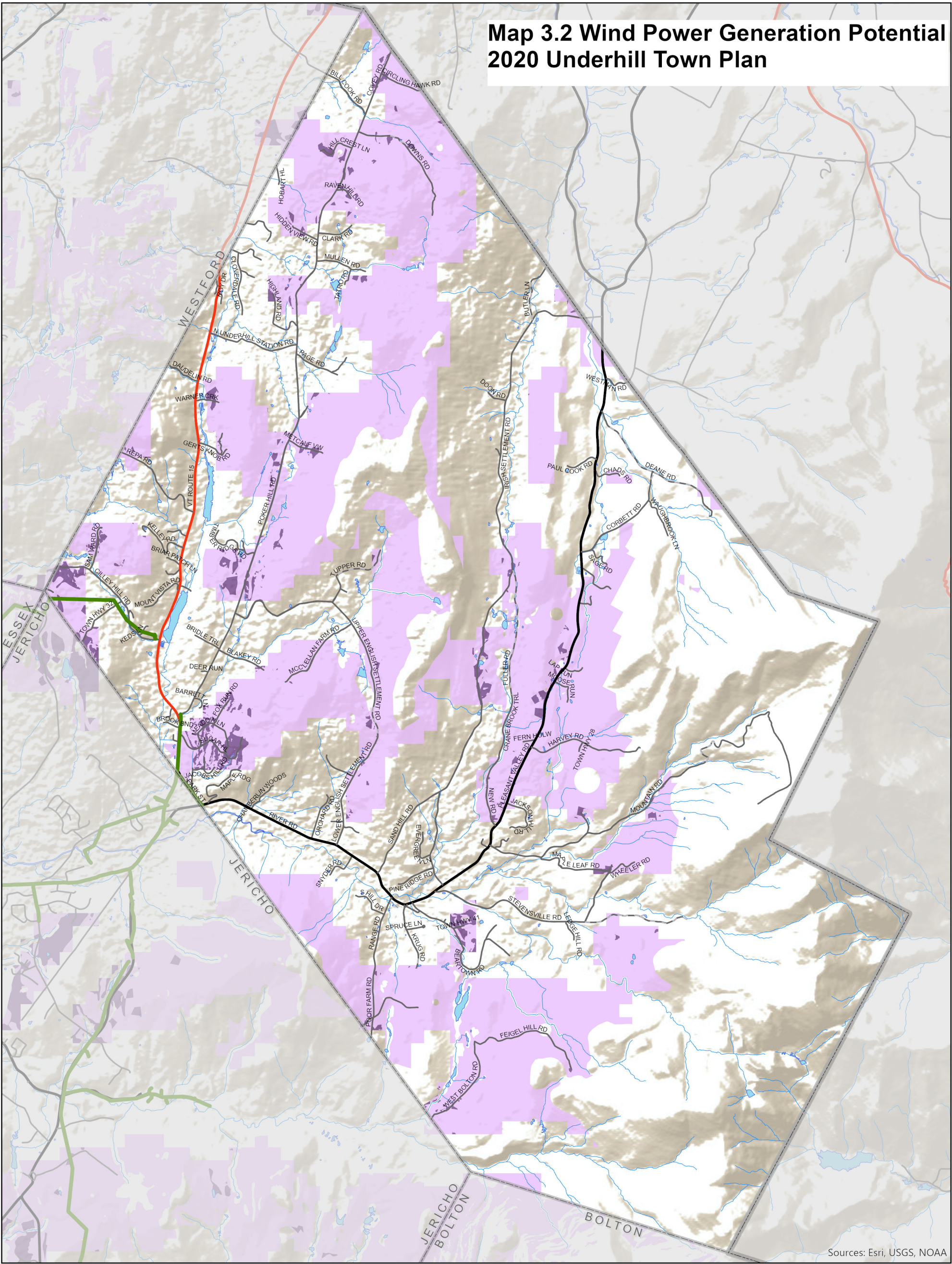
Note: This map and the corresponding data is intended to be used to inform energy planning efforts by the Town of Underhill. This map may also be used for conceptual planning as it is a basic state-wide analysis that may not be sensitive to site specific energy potential; therefore renewable energy generation potential may be possible in the white areas. The Known and Possible Constraint Maps should be consulted to aid in the planning for renewable energy generation. These maps do not take the place of site-specific investigation for a proposed facility and should not be used as "siting maps". This map does not take all 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 facility. This map shall not be used without the accompanying policies contained within the 2020 Underhill Town Plan.



Source: Road Centerline -e911 11/2019; Surface Water - VHD, 2008 (VCGI); Solar Potential, 2018-CCRPC, DPS;Map created by M. Needle using ArcGIS Pro. All data is in State Plane Coordinate System, NAD 1983.




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Map 3.2 Wind Power Generation Potential 2020 Underhill Town Plan



Sources: Esri, USGS, NOAA

Legend

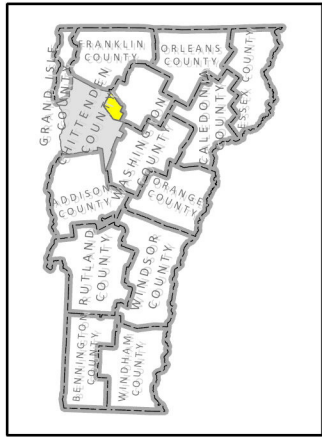
-  3-Phase Power
-  Prime Wind: Areas with high wind potential and no state/local known or possible constraints
-  Base Wind: Areas with high wind potential and a presence of state/local possible constraints

0 0.5 1 Mile

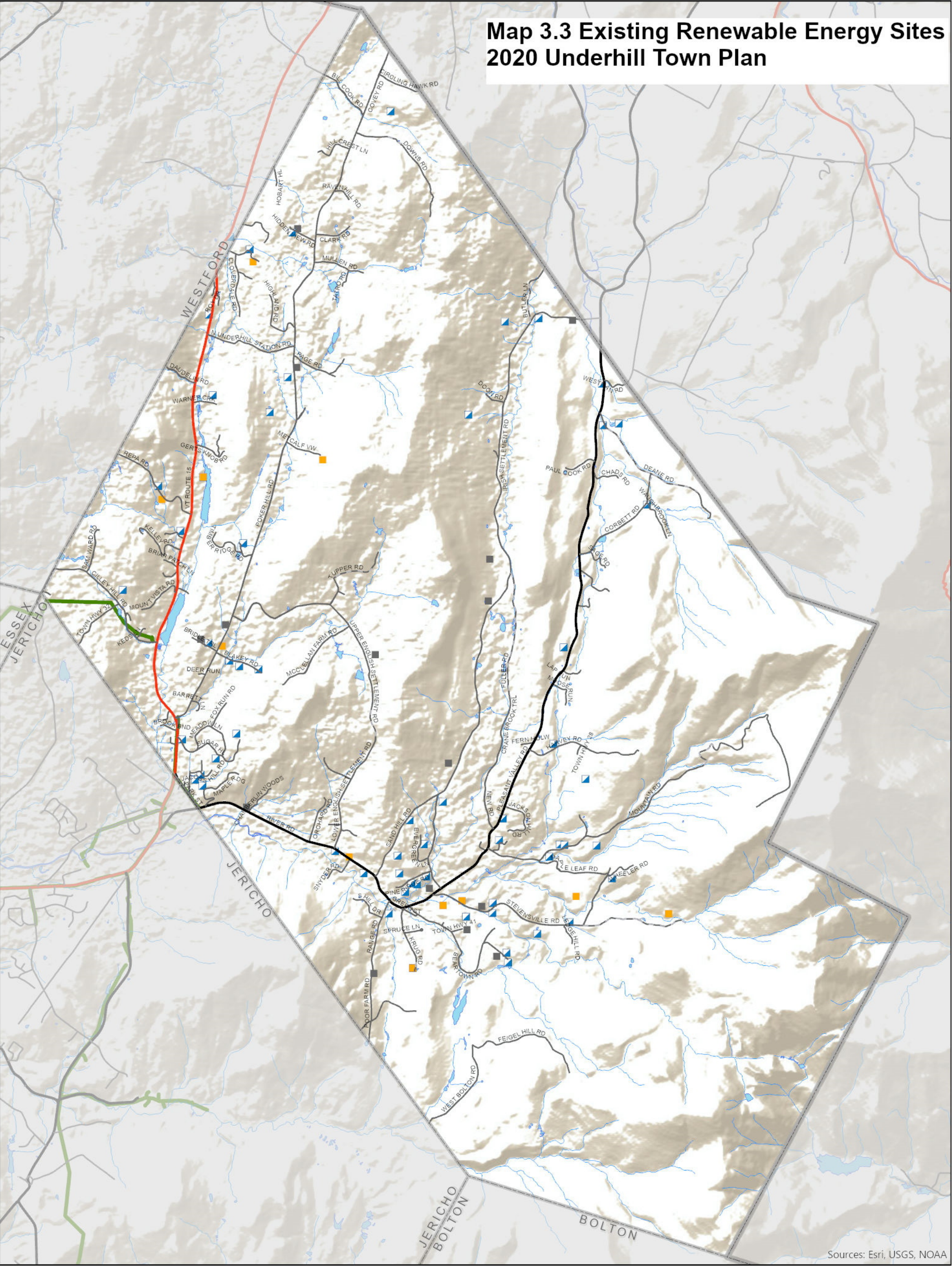
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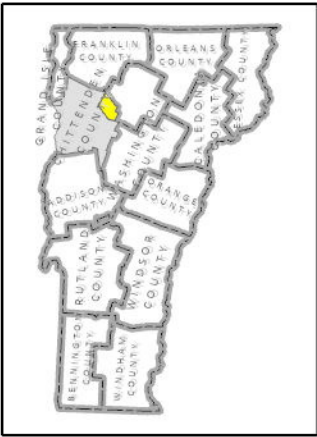
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Map 3.3 Existing Renewable Energy Sites
2020 Underhill Town Plan



Sources: Esri, USGS, NOAA



Legend

Existing Renewable Energy Sites

- Ground Mounted Solar
- Solar Hot Water
- Roof Mounted Solar
- 3-Phase Power

Note: This map and the corresponding data is intended to be used to inform energy planning efforts by the Town of Underhill. This map may also be used for conceptual planning as it is a basic state-wide analysis that may not be sensitive to site specific energy potential; therefore renewable energy generation potential may be possible in the white areas. The Known and Possible Constraint Maps should be consulted to aid in the planning for renewable energy generation. These maps do not take the place of site-specific investigation for a proposed facility and should not be used as "siting maps". This map does not take all 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 facility. This map shall not be used without the accompanying policies contained within the 2020 Underhill Town Plan.

0 0.5 1 Mile

Source: Road Centerline -e911 11/2019; Surface Water - VHD, 2008 (VCGI); Existing Renewable Energy,2017-CCRPC, DPS;Map created by M. Needle using ArcGIS Pro. All data is in State Plane Coordinate System, NAD 1983.

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Chapter 4



Photograph 4.1 – Submitted by Tim Durbrow

Transportation

- GOAL 1:** Provide a convenient, economic, and safe road system that respects the integrity of the natural environment and seeks to maximize the safety of: drivers who use the roadway; pedestrians and bicyclists on, or adjacent to, the roadway; and residents who live alongside the road.
- GOAL 2:** Support and encourage public transit opportunities and increased use of public transportation.
- GOAL 3:** Promote the safe use of alternative forms of active transportation; this includes safe pedestrian and cyclist lanes or sidewalks in designated village areas.
- GOAL 4:** Encourage transportation systems that maximize affordability, equity, accessibility, and environmental/climate sustainability.
-

POLICY 1: Adhere to, and revise, where appropriate, the Town’s Road, Driveway & Trail Ordinance with respect to roadway, bridge, culvert, and private road & driveway construction and maintenance.

Strategies:

1. Review and consider VTrans Road and Bridges standards and adopt, where appropriate, standards for Town with respect to roadway construction and maintenance.
2. Update the Town Road, Driveway & Trail Ordinance regulating private road and driveway construction, while taking into consideration new construction techniques and technologies.

POLICY 2: Ensure that public and private roadway (including private driveways) construction and maintenance assures public safety, respects Underhill’s rural character, and minimizes environmental impacts.

Strategies:

1. Identify new or continued roadway and driveway safety issues and seek to implement feasible remedial measures.
2. Maintain public roadways and rights-of-ways free of litter and debris.
3. Revise the Town’s Road, Driveway & Trail Ordinance where necessary to ensure safe access by emergency vehicle and residents.
4. Strongly encourage the Town’s road crew to attend workshops regarding roadside maintenance and invasive species.
5. Develop guidelines for roadside aesthetics and invasive species.

POLICY 3: Provide financial, logistical, and regulatory support for expanded public transportation, active transportation, and climate-friendly transportation options.

Strategies:

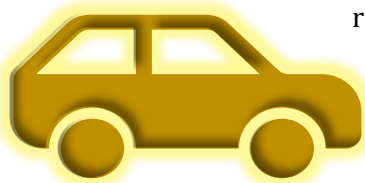
1. Continue annual financial support within the means of the Town for Green Mountain Transit (GMT) service to and through Underhill.
2. Continue to support and promote services provided by the Special Services Transportation Agency (SSTA) and the United Way’s Neighbor Rides program.
3. Conduct outreach and promote use of GMT & SSTA services.
4. Inquire with Chittenden Area Transportation Management Association (CATMA) about educational opportunities for residents pertaining to transportation options.
5. Survey Underhill’s residents to better understand current barriers to transportation and the public transportation/alternative transportation needs of Underhill’s residents, especially for its most vulnerable populations like the elderly and low-income residents.
6. Investigate transportation resources such as the AARP’s Roadmaps for Livability, which includes a transportation workbook:
<https://www.aarp.org/content/dam/aarp/livable-communities/livable-documents/documents-2018/Book-4-Roadmap-to-Livability-Transportation-051118lr.pdf>
7. Participate in regional and local transportation initiatives and collaborations such as the Tri-Town Transportation Committee.

8. Comply with VT Act 34 (the Complete Streets Law), except in the case of unpaved highways, to ensure the needs of all users are considered when planning, constructing, and maintaining transportation infrastructure.
9. Actively encourage the implementation of the planned River Road bike/walk lane with local and regional planning bodies.
10. Recommend to the Selectboard that they update the road and bridge standards to ensure guardrails allow sufficient room for pedestrians between the travelled portion of the highway and the placement of the guardrail.
11. Review and consider revising regulations in a manner that will better facilitate public transportation and park and ride lots.
12. Encourage use of a common ride share application (e.g. cell phone application) as a focal point for Town ride sharing.
13. Conduct pedestrian and bicyclist safety awareness workshops.
14. Explore the feasibility of constructing a sidewalk in Underhill Center.
15. Facilitate the conversion to electric vehicles by identifying potential public EV-charging stations; educating residents on the benefits of EVs and fuel cell vehicles and the state of utility incentives available; and encouraging the Town to lead by example.

BACKGROUND

Underhill's transportation plan is designed to meet the State's statutes, conform to the 2018 Chittenden County ECOS (Regional) Plan, and serve the needs and interests of the Town's residents. The overall goal is to provide a safe, convenient, economic, and energy-efficient transportation network that: respects the integrity of the natural environment; includes public transit options and paths for pedestrians and bicyclists; maintains the aesthetic value of the Town's natural resources; and promotes development and revitalization in established village areas, and addresses the transportation needs of Underhill's most vulnerable residents – low income and elderly residents.

Currently, all road improvements, including the construction of new roads and driveways, modifications, and work within the Town's rights-of-way, is regulated by the Town's Road, Driveway & Trail Ordinance (the Road Ordinance). In 2018, the Selectboard amended the Road Ordinance (previously adopted in 2015) to restructure the layout, as well as modify the access permitting process to allow for a more efficient review process. The Town also proposed amendments to the *Unified Land Use & Development Regulations* that would eliminate relevant Road Ordinance-related regulations and move them to the Road Ordinance itself. Due to a procedural mistake, the proposed amendments (which eliminate the relevant Road Ordinance-related regulations) to the *Unified Land Use & Development Regulations* were voted on and approved at Town Meeting Day in March 2020. The proposed amendments reconciled the discrepancies between the *Unified Land Use & Development Regulations* and the Road Ordinance. Going forward, the Road Ordinance standards should be reexamined to meet the goals and policies of this chapter.



In addition, the Road Ordinance provides standards for road specifications, whether private or public, driveway specifications, bridges, culverts, etc. Within the ordinance itself, some Vermont State standards, such as the AOT A-76 Standards (pertaining to road specifications) and AOT B-71 Standards (pertaining to driveway specifications) are incorporated by reference. These standards developed by the State ensure standardization amongst all Vermont state highways, private development roads, and driveways, and can be used for roadways and driveways in the absence of a local ordinance that would specify otherwise. Other State standards have also been considered and incorporated by reference; however, not necessarily strictly adhered to, and therefore, the Town should reexamine these standards to determine their effectiveness in achieving the above stated goals.

EXISTING ROADWAY NETWORK

The Town's geography constrains the layout and locations of roads. Specifically, the Town is comprised of parallel north-south mountains and valleys. As a result, Vermont Route 15 and Poker Hill Road are laid out in a north-south direction through a valley in the western part of Underhill, while Irish Settlement and Pleasant Valley Roads are laid out in a north-south direction through a valley in the eastern part of Underhill. Altogether, the Town is comprised of over 78 miles of roads, 17 bridges, and 799 culverts.²⁵ With respect to road classification within the Town, see Table 4.1.

Table 4.1 – Road Classification

Class	Miles
State Highway	4.94
Class 2	8.75
Class 3	43.46
Class 4	6.74
Legal Trails	0.60
Private Roads	14.67

Source: VTrans Highway Map, 2016

The Transportation Map (see Map 4.1) provided below provides the layout of all public and private roads and depicts the delineation of road classifications, while Appendix C provides additional details about the Town's public and private roads. Underhill will continue to work with VTrans and the Chittenden County Regional Planning Commission (CCRPC) to update information regarding the road network.

Vermont Route 15 serves as the Town's major transportation artery for through traffic, bisecting Underhill Flats

²⁵ www.Vtculverts.org

Village Center at the Underhill/Jericho town line and traveling north to the Underhill/Westford Townline. To access the eastern part of Town, one must travel from Vermont Route 15 along River Road in an east-west direction, which connects to Underhill Center. River Road ends in Underhill Center; however, Pleasant Valley Road connects with River Road and travels in a North-South direction until it reaches the Underhill/Cambridge town line.

Poker Hill Road serves as a minor transportation artery for the Town and is accessed from Route 15 in the Underhill Flats Village Center, while Irish Settlement Road also serves as a minor transportation artery and is accessed from Pleasant Valley Road in the Underhill Center Village. Besides River Road, the only road that connects the western part of Underhill to the eastern part is English Settlement Road; however, English Settlement Road is divided into two segments – Lower English Settlement Road and Upper English Settlement Road. These two segments are connected by approximately 0.3 miles of a Class IV Road, which can potentially lead to unreliable conditions since Class IV Roads in Underhill are not regularly maintained.

PUBLIC TRANSPORTATION

Public transportation is both a social and environmental service that is critical for addressing issues of health, climate, environment, access, sustainability, and equity. Public transportation faces many barriers, especially in a rural setting such as Underhill's. Addressing public transportation's myriad barriers requires innovative solutions and careful planning. To identify and address the rural barriers to successful public transportation, Underhill should seek to analyze and understand community needs, social conditions, accessibility, and culture and perceptions. Underhill's energy committee should be an engaged partner encouraging sustainable, accessible, and efficient public transportation. Currently, Underhill is served by Green Mountain Transit (GMT) (formerly Chittenden County Transit Authority) and Special Services Transportation Agency (SSTA).

Underhill's only public transit service is the Vermont Route 15 Jeffersonville Commuter Bus offered by GMT. The Town had discussed discontinuing its service with the commuter bus service; however, Underhill residents voted to continue financial support for the service. Currently, the Jeffersonville Commuter Bus offers weekday services with two pick-up/drop-off times in the morning hours and two pick-up/drop-off times in the evening hours. The route connects Burlington with the rural communities of Underhill, Jericho, Cambridge, and Jeffersonville, providing a valuable service that allows those reliant on public transportation to travel to Burlington. The pick-up/drop-off location most relevant to Underhill and its residents is located along River Road in the Riverside/Underhill Flats Village Center at a Park and Ride parking lot. While the lot is not physically located in Underhill, it is located within a few hundred feet of the Jericho/Underhill Townline, thus providing easy access to Underhill residents.

...the Jeffersonville Commuter Bus offers weekday services with two pick-up/drop-off times in the morning hours and two pick-up/drop-off times in the evening hours ... [and] connects Burlington with the rural communities of Underhill, Jericho, Cambridge, and Jeffersonville. . . .

In addition, the Special Services Transportation Agency (SSTA) is a not-for-profit corporation that operates out of Colchester, providing both (i) accessible transportation for individuals who have specialized mobility needs and (ii) coordinated transportation services to many human service agencies.

While Underhill is appreciative of these services, the Town has been unable to find additional public transportation options for its residents. This lack of public transportation options is consistent with other rural communities in

Vermont, as rural municipalities oftentimes have difficulties in sustaining public transportation operations due to the relatively dispersed/low population levels. Nevertheless, Underhill is supportive of new ideas that encourage the decrease of single-occupancy vehicles. In recent years, Underhill has coordinated with the Towns of Cambridge and Jericho by forming the Tri-Town Transportation Committee, which focuses on “regional transportation options with the goal of increasing the availability of cost effective, convenient and accessible public transportation services.”²⁶ Other potential ideas may include the exploration of feasible ride-sharing programs, as well as exploring potential technological applications that would facilitate public transportation.

ACTIVE TRANSPORTATION

Underhill’s predominant mode of transportation is the personal automobile due to the Town’s rural nature and the resulting lack of active transportation options. Active transportation planning allows for individuals to choose from various non-motorized modes of transportation (e.g. walking, cycling, etc.) to complete their trip, and typically includes locations that allow for a connection to motorized transportation (e.g. a sidewalk that connects to a transit stop). Communities that plan and implement active transportation projects provide opportunities for residents to walk or bike; improve network connectivity and efficiency; and contribute to the quality of rural life.



At the time this Plan is being written, the Town has secured all of the necessary easements to extend the sidewalk in Underhill Flats Village Center along Route 15 from Park Street to Dumas Road. The Underhill Flats Village Center sidewalk is funded by federal, state, and local funds and will enhance bicycle and pedestrian access, connect adjacent residential areas to an existing sidewalk network, and promote safe connectivity to existing schools.

Upon completion, the Town should explore the feasibility of a sidewalk in its other village center, Underhill Center, which would serve as a safe connector both within Underhill Center and between Underhill Center and other notable attractions, such as Moore Park, the Town Pond, Underhill Central School and Casey’s Hill.

In addition, CCRPC is currently coordinating a study that is examining the feasibility of a bike/pedestrian lane along River Road, as well as reviewing options along Pleasant Valley Road from Underhill Center to the Underhill/Cambridge town line (this study conforms to the Complete Streets initiative as described below).

The idea of constructing a bike lane alongside River Road has been longstanding, as pedestrian and bicyclist safety on this road has been a growing concern. Since River Road will require reconstruction in the next few years, incorporating a bike/pedestrian lane during reconstruction should be seamless and is supported by Underhill residents. Going forward, the Town should continue to explore and identify other potential active transportation projects that will benefit all users of the roadway network.

Complete Streets

On July 1, 2011, the Complete Streets Law (VT Act 34) went into effect, requiring the State and its municipalities to consider the needs of all users (e.g. bicyclists, pedestrians, transit users) in all transportation plans and projects on paved roadways. The purpose of Act 34 is to ensure that roads are designed, maintained, and operated to enable safe and convenient access for all users, regardless of their mode of transportation. Examples of design elements encouraged through the Complete Streets program include:

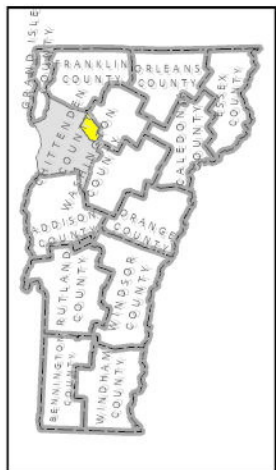
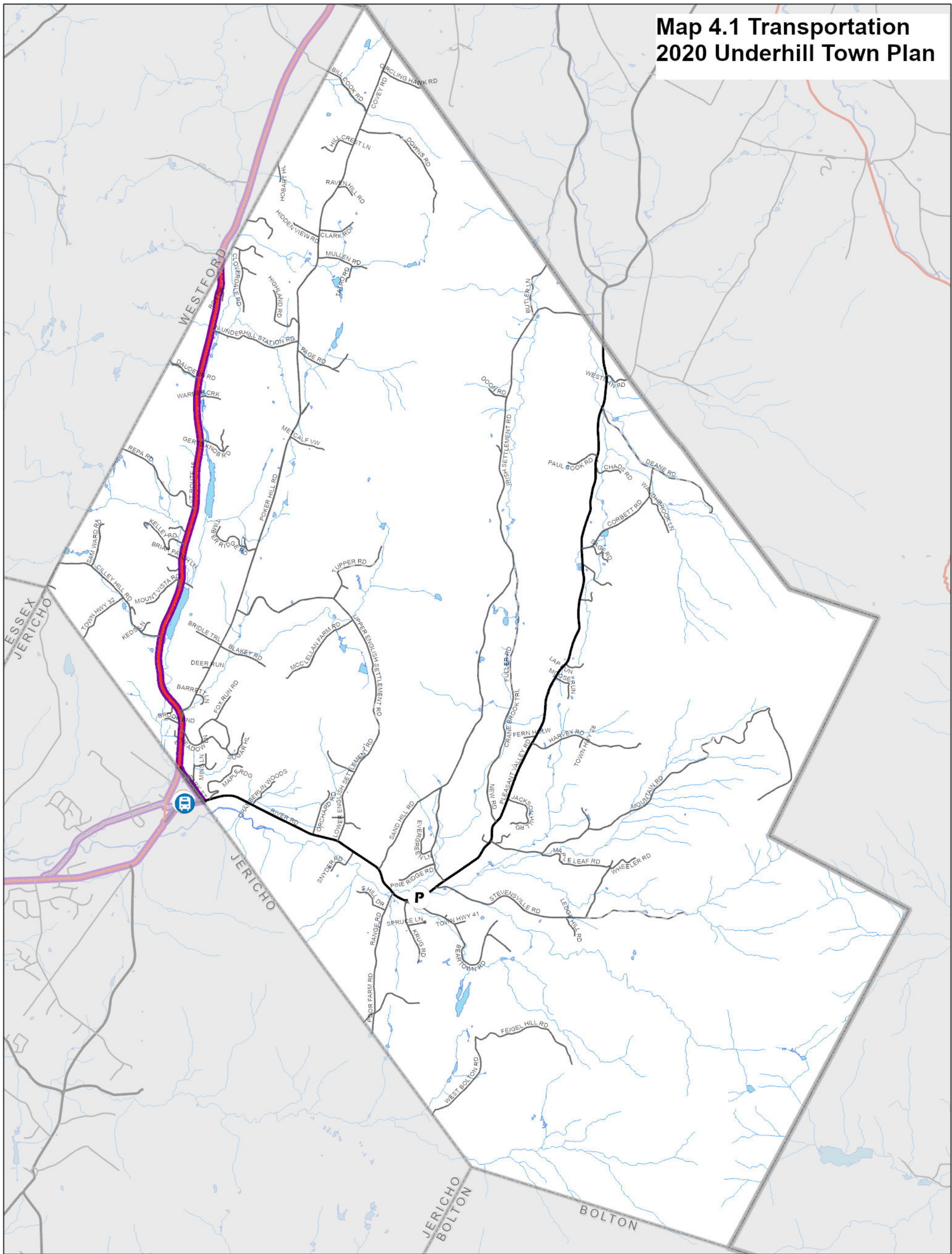
- Adding and maintaining sidewalks that are connected to public services;
- Improving lighting, signage, and pavement markings; and
- Installing curb ramps and sidewalk seating.

²⁶ Tri-Town Alternative Transportation Committee’s mission statement.

Ultimately, Complete Streets are safer for automobile drivers and provide greater mobility and accessibility to those without an automobile. Integrating the needs of all users is critical to developing a sustainable and efficient multi-modal transportation network.

In Underhill, pedestrian and bicyclist safety have been of increasing concern, particularly since utilization of the roadway network has increased significantly over the past few decades. Identification of roadway safety issues and consideration of the Complete Streets policies will help further the goal of providing a safer roadway network for all users.

Map 4.1 Transportation
2020 Underhill Town Plan



Legend

- Transit Stop and Park & Ride
- Existing/Funded Park & Ride
- Green Mountain Transit Commuter Route
- Road Centerline
- State Highway
- Town Highway Class 2
- Town Highway Class 3
- Town Highway Class 4
- Stream Centerline
- Water Body

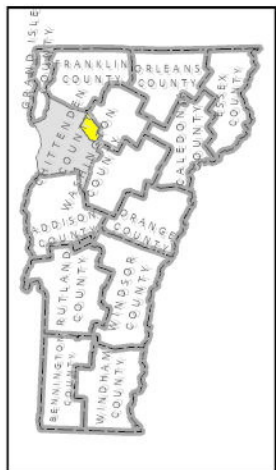
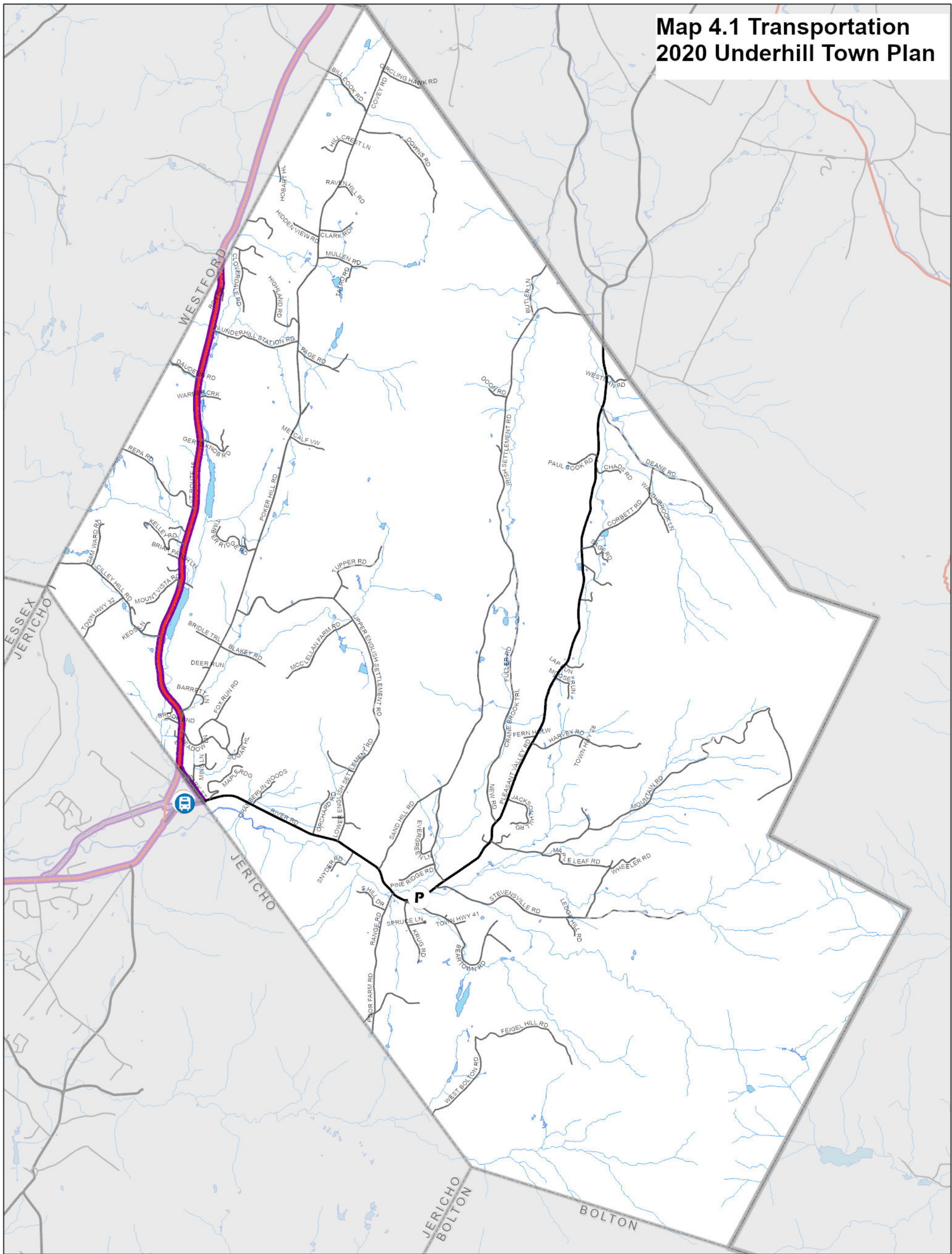
0 0.5 1 Mile



Source: Road Centerline - E911, 2020; Surface Water - VHD, Transit, GMT; Map created by M. Needle using ArcGIS Pro. All data is in State Plane Coordinate System, NAD 1983.

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.

Map 4.1 Transportation
2020 Underhill Town Plan



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- Transit Stop and Park & Ride
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Source: Road Centerline - E911, 2020; Surface Water - VHD, Transit, GMT; Map created by M. Needle using ArcGIS Pro. All data is in State Plane Coordinate System, NAD 1983.

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CHITTENDEN COUNTY RPC
Communities Planning Together

Document Path: D:\Projects20\Underhill\2020TownPlanMaps.aprx 2/13/2020

Chapter 5



Photograph 5.1 – Submitted by Tim Durbrow

Infrastructure

- GOAL 1:** Town owned infrastructure (including buildings, equipment, roads, etc.) should be compliant with federal, State, and local regulations.
- GOAL 2:** Town-owned infrastructure should be proactively maintained.
- GOAL 3:** Provide a safe, convenient and cost-efficient transportation network that minimizes the impact on the Town’s natural resources.
- GOAL 4:** Maintain and improve infrastructure that is adequate to meet the needs of Underhill’s residents.
-

POLICY 1: Improve and maintain the Town’s infrastructure in a fiscally responsible manner.

Strategies:

1. Continue the strategic and long-term planning of capital assets and capital projects that support the maintenance of the Town’s infrastructure.
2. In the event the current procedures for long-term planning and capital assets cease to satisfy the requirements of the Town, adopt a Capital Improvement Program (CIP).
3. Perform periodic energy audits and follow recommendations made in such audits where economically feasible.
4. Explore new technology and maintenance techniques that could reduce infrastructure expenditures (e.g. rehabilitating existing gravel roads).
5. Explore using possible local sources of sand and gravel with consideration regarding cost, effectiveness, and environmental issues.
6. Continue to pursue grants for infrastructure improvements.
7. Perform cost/benefit analyses of equipment on a periodic basis to determine if an equipment upgrade would result in material savings over the usable life of the asset.

POLICY 2: Maintain Town infrastructure in a manner that protects the health, safety, and public welfare of users.

Strategies:

1. Provide education opportunities to landowners relating to the requirements of the Road Ordinance, as well as appropriate maintenance measures.
2. Continue to recommend “shared maintenance agreements” for all new subdivisions to ensure private roads and driveways are properly maintained so as to not negatively impact Town roads.
3. Pursue mitigation measures with the State that will minimize the impacts to Mountain Road and Stevensville Road due to increased visitation to Underhill State Park and Mount Mansfield trails.
4. See the following chapters for related strategies: *Recreation, Natural Resources, Land Use and Transportation*.

POLICY 3: Enable regulations that allow for greater housing density and increased water and wastewater capacity in designated areas of Town.

Strategies:

1. See *Land Use Chapter*.

BACKGROUND

Underhill's infrastructure is largely comprised of equipment, roads, land, and buildings; however, the Town's infrastructure also includes, but is not limited to: road supplies, water and septic capacity, energy networks, and communication networks. While all forms of infrastructure are valued commodities, community buildings are an integral part of the fabric of a small Town like Underhill because they provide community space for Town government, cultural opportunities, educational opportunities, and recreation. Underhill Town Hall is arguably the most important piece of infrastructure owned by the Town since it serves all of the aforementioned purposes.

Planning for a Town's future should consider projected population, changing needs, the priorities of its residents, and budgetary constraints. Budgetary constraints often limit the number of infrastructure projects and result in the prioritization of maintenance of existing infrastructure over new or expanded infrastructure. When fiscal conditions allow, projects related to improving the Village Centers can be contemplated.

PUBLIC ASSETS

The Town of Underhill owns multiple public buildings, which include: the Town Hall, Underhill Center Post Office, the Town Garage and Old Schoolhouse #5. All of the government administrative functions are conducted at Underhill Town Hall, located in Underhill Center along Pleasant Valley Road. The Town Garage, on New Road, is the primary transportation facility and is home to the Town highway department's vehicles and equipment.

In addition to the buildings the Town owns, it also has title to approximate 135 acres of land, as depicted in Table 5.1 below.

Table 5.1 – Town Owned Land

Property Code	Address	Property Type	Acreage
BE097X	97 Beartown Road	Gravel Pit	±11.18 Acres
FU012X	12 Fuller Road	Land	±0.33 Acres
FU054X	54 Fuller Road	Land	±17.00 Acres
MT002X	2 Mountain Road	Land (Casey's Hill)	+8.05 Acres
MT002X	2 Mountain Road	Land (Tomasi Meadow)	±16.7 Acres
NR077X	77 New Road	New Garage/Salt Shed	±60.00 Acres
NR141X	141 New Road	Land	±10.19 Acres
PA004X	4 Park Street	Park (Underhill Flats Green)	±0.20 Acres
PV002X	2 Pleasant Valley Road	Park (Underhill Center Green)	±0.30 Acres
PV011X	11 Pleasant Valley Road	Park (Moore Park)	±1.75 Acres
PV012X	12 Pleasant Valley Road	Town hall	±0.98 Acres
PV032X	32 Pleasant Valley Road	Old Schoolhouse #5	±0.83 Acres
RV249X	249 River Road	Sand Hill Cemetery	±0.75 Acres
RV286X	286 River Road	Underhill Center Post Office	±0.50 Acres
ST010X	20 Stevensville Road	Town Pond	±2.00 Acres
VT539X	539 Vermont Route 15	Land	±3.10 Acres

Sources: FY2020 Underhill Town Report

In the summer of 2020, the Jericho-Underhill Land Trust worked in conjunction with the Town's Selectboard, the Tomasi family, donors and residents to acquire the "Tomasi Meadow," which is land immediately adjacent to Casey's Hill. This undeveloped piece of land is approximately 16.7 acres and is a valuable piece of land for Town residents because of its views of Mt. Mansfield. Now that the Town has acquired this piece of land, there will forever be an extended, conserved parcel of undeveloped land that runs from the outskirts of Underhill Center to Mountain Road.

ROADS

One of the Town's biggest responsibilities, is to provide and maintain a road network that accommodates Town residents and visitors. Overall, there are over 78.56 miles of public and private roads in Underhill (see Table 4.1), 66.5% requiring year-round maintenance (Class II and Class III Town Highways).

During 2018 and 2019, Class IV Roads and related maintenance issues have become prominent concerns amongst those who own land accessed by one of these roads (Note: see Appendix C containing the Town's Class IV roads). Due to these concerns, the Town's Highway & Infrastructure Committee conducted a survey in which almost half of the respondents (48%) opined that the Town should maintain Class IV Roads.²⁷

Prior to 2018, little or no maintenance was performed on these Class IV roads, as the Vermont Supreme Court has advised that Vermont municipalities have no obligation to maintain Class IV roads. However, should a municipality maintain these roads, it cannot do so in an arbitrary manner. As a result, the Town has been in the process of developing a Class IV roads policy to ensure that maintenance and spending is performed in an equal manner. Going forward, the Town should continue to develop the Class IV Road Policy, as well as identify any existing Class IV roads as potential options to be discontinued or converted to private roads.

In 2015, the Vermont State Legislature passed Act 64, a clean water initiative. Subsequently amended, the current iteration of Act 64 required the Vermont Agency of Natural Resources to develop a Municipal Roads General Permit (MRGP) program, which is aimed at reducing stormwater-related erosion events caused by municipal roads – paved and unpaved.²⁸ Since the implementation of the MRGP, the Town of Underhill has developed a Stormwater Master Plan that addresses road maintenance and stormwater management. The Stormwater Master Plan provides for basic maintenance standards, as well as corrective measures that assist in the reduction of erosion, in an effort to conform with the State's Lake Champlain Total Maximum Daily Load (TMDL) for phosphorus and other water quality restoration efforts. In conjunction with developing a Stormwater Master Plan, the Town has also pursued and completed a project in compliance with the MRGP, which involved the construction of a bioretention pond along Pleasant Valley Road at the Town's offices.

Table 4.1 in the Transportation Chapter provides an overview of the Road Classification by mileage while Appendix C provides more details about each of the Town's roads.

FUN FACT:

UNDERHILL STATE PARK'S VISITATION HAS DOUBLED SINCE 2009, AS TOTAL ATTENDANCE WAS APPROXIMATELY 11,500 USERS IN 2009 AND APPROXIMATELY 23,400 USERS IN 2019.

Increased visitation to Underhill State Park has created overflow parking problems on Mountain Road and Stevensville Road. Parking on these roads causes congestion, creates safety issues, and is a source of aggravation for residents in the area. The Town also incurs expense for maintenance beyond what is regularly required for other Town roads. As a result, Town staff and the Town's legislative representatives have been coordinating, and should continue to coordinate, with the State's legislature and Vermont Department of Forests, Parks & Recreation to resolve the issues, as well as to proactively address the exacerbation of these issues as the Park's visitation continues to rise.

TOWN EQUIPMENT & OTHER INFRASTRUCTURE

The Town of Underhill owns several heavy equipment vehicles, including five trucks, a pick-up truck, one

²⁷ 2019 Roads Survey

²⁸ <https://dec.vermont.gov/watershed/stormwater/permit-information-applications-fees/municipal-roads-program#Development%20of%20Permit>

excavator, one grader, one loader, one equipment trailer one chloride trailer, one trailer with a culvert thawer, three rear sanders, one 2-yard slide-in sander, and eight plows (five 1-way plows and three v-plows). This equipment is vitally important to maintaining the Town's road network, and any damage to, or destruction of, even one of these pieces of equipment could significantly impede the Town's road crew.

Underhill is also responsible for maintaining the sidewalks in Underhill Flats and providing electricity for streetlights located in both of the village centers. As mentioned in the Transportation Chapter of this Plan, the Town recently secured the final easements to expand the sidewalk from Park Street to Dumas Road. This project has an anticipated completion date of the summer of 2021. Upon completion, the project will contribute to the Town's land use goal for the Underhill Flats Village Center, by providing compact walkable development. For other infrastructure-related information, see the Services and Transportation Chapters of this Plan.

... the Town recently secured the final easements to expand the sidewalk from Park Street to Dumas Road ... [which] has an anticipated completion date of the summer of 2020.

CAPITAL PROJECT MANAGEMENT

On Thursday, February 25, 2021, the Underhill Selectboard, at the recommendation of Town Staff, in addition to the support of the Planning Commission, voted to repeal the Capital Improvement Program (CIP). The CIP is a voluntary program municipalities adopt to help coordinate and plan major capital investments (e.g. the rebuilding of a road, a bridge replacement, the construction of a new building, etc.) over a 5-year period, thereby avoiding a situation where numerous capital projects need attention at one time.²⁹ While the CIP is a valuable program for some communities, the program can be rigid and inflexible. Since approval of the CIP requires a public hearing, any modifications, amendments or supplementations to the program require additional public hearings.

During the latter 2010s, the Highway, Infrastructure and Equipment Committee was created to help coordinate projects that would be incorporated into the CIP. This highly active and proactive committee has exceeded the goals of the CIP by planning for and coordinating the purchase of, improvement of, and upgrading of capital assets 10 years in advance. However, the proactiveness of the Committee means that the plan and coordination is ever evolving, thereby leading to proposed modifications to the CIP on a frequent basis. Unfortunately, the Town was unable to follow the statutory requirements of the program for the few years before 2021, as public hearings were unable to be performed when amendments were proposed. As a result, in 2021, Staff recommended that the Selectboard repeal the CIP to allow the Town more flexibility in its planning of capital projects. This would allow the Town to proceed with the flexible management of its capital project planning, and as a direct result, more flexibility with the financial planning of those projects.

While the Selectboard repealed the CIP, the Town shall continue its long-term planning and coordination of capital assets and capital projects. The repeal of the CIP by no means is meant to absolve the Town of this responsibility. Capital assets and projects shall still conform with the Town Plan, and Town Staff shall still strive to produce a document outlining those projects and assets in a similar manner as the CIP. The public still has the opportunity to provide comments about these projects and assets by attending the Highway, Infrastructure and Equipment Committee's meeting and/or attending Selectboard meetings. In the event that the Highway, Infrastructure and Equipment Committee ceases to long-term plan for capital assets and projects in the manner they are at the time this plan was written, or the as Selectboard deems necessary, the Selectboard shall proceed with readopting the

²⁹ Additionally, the CIP identifies the Town's highest priority capital expenditure needs and incorporates them into the annual budgeting process. The projects that are selected to be in the CIP must conform with the goals and policies of this Plan, and must meet both the statutory requirements and the Town's policies.

Chapter 6



Photograph 6.1 – Submitted by Tim Durbrow

Services

- GOAL 1:** Ensure that all residents have access to reliable and affordable internet and cell phone service, in particular for educational and vocational training opportunities.
- GOAL 2:** Promote emergency response awareness.
- GOAL 3:** Maintain emergency services and related facilities and infrastructure to support emergency responses.
- GOAL 4:** Increase the availability of child care services in Underhill.
-

POLICY 1: All areas in Underhill should have access to reliable cellular telephone service.

Strategies:

1. Identify the areas in Town that do not have access to cellular telephone service.
 2. Provide links on the Town’s website to cell service providers so that residents can check on whether a provider serves their area.
 3. Facilitate meetings with interested parties to explore the expansion of cell phone service.
 4. Research funding opportunities to install repeaters so that all residents have cell phone service.
-

POLICY 2: High-speed internet access should be available to all residents in Underhill.

Strategies:

1. Identify areas that do not have access to internet service.
 2. Provide links on the Town’s website to internet providers so that residents can check on whether a provider serves their area.
 3. Facilitate meetings with interested parties to explore the expansion of internet service.
 4. Work with the State of Vermont to encourage and provide funding to fiber providers for reliable, affordable internet for all residents.
-

POLICY 3: Ensure the Town is prepared during emergency events and/or situations; and improve response capacity and emergency planning.

Strategies:

1. Maintain the Local Emergency Management Plan (LEMP) as directed by 20 V.S.A. § 6.
 2. Review and update LEMP annually.
 3. On an annual basis, between Town Meeting Day and May 1, readopt (as recommended by 20 V.S.A. § 6) the LEMP and report the adoption to CCRPC.
 4. Identify volunteers and resources that can be used during emergency related events and situations (e.g. doctors, heavy equipment, generators, etc.).
 5. Periodically upgrade emergency services equipment and infrastructure.
 6. Explore the creation of a program that identifies residents that may need additional assistance during an emergency event (for example, residents on respirators or dialysis during a power outage event).
 7. Collaborate with the Town’s Energy Committee to implement emergency service strategies that are not dependent on fossil fuels (e.g. residential batteries that can provide life-saving services to people who rely on electricity to power life-sustaining equipment and can keep critical medications refrigerated).
 8. Explore the installation of solar and battery storage at critical response centers and/or designated emergency centers, such as Red Cross disaster relief centers.
 9. Identify vulnerable residents who heat with electricity and who may need alternative methods for staying warm in the event of a winter outage, as well as groups that deal with vulnerable residents.
-

POLICY 4: Provide residents with fire protection, police, EMS, human services, and emergency services.

Strategies:

1. Maintain funding to support emergency response and planning, including related facilities and

infrastructure.

2. Include funding through the planning of capital projects & capital assets, as needed for emergency response services, planning, and infrastructure.
3. Annually review the adequacy of the Town's contracts for police and other emergency services and create new contracts with other entities as needed (e.g. VT Army National Guard).
4. Support the review of current training and certification programs for Chittenden County police officers with respect to training on diversity, equity, and justice and on de-escalating conflict.
5. Review and consider adopting the Vermont League of Cities and Towns' principles on 21st Century Policing.
6. Periodically review mutual assistance agreements with other towns and the County.
7. Encourage community groups or non-profits that support DEI initiatives to build diversity, equity, and inclusion into the community.

POLICY 5: Inform the community of local emergency response services, resources, and opportunities to participate in emergency response operations.

Strategies:

1. Provide information to residents about local emergency services through the Town's website, annual report, and other outreach channels.
2. Provide information about, and encourage volunteer participation in, emergency services.

POLICY 6: Support and encourage increased availability of child care services.

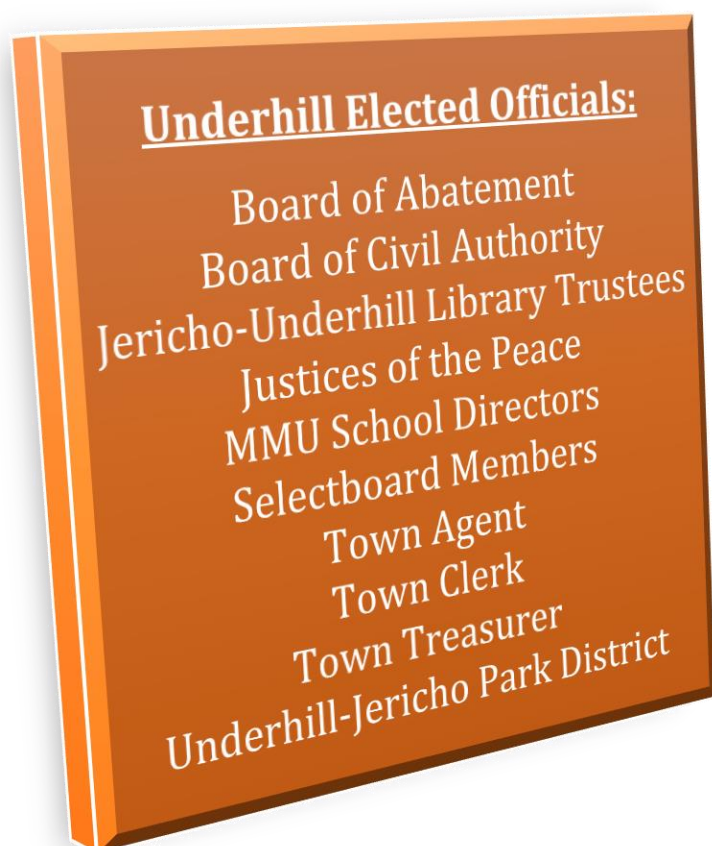
Strategies:

1. Contact private organizations and State agencies (e.g. Department for Children and Families) to obtain information relating to child daycare services and how to encourage more daycare facilities through zoning regulations.
2. Investigate subsidized childcare options that the Town can support.
3. Coordinate a public forum for Underhill Residents pertaining to child daycare services.
4. Review and update (where appropriate) the Town's zoning regulations relating to child daycare facilities to help facilitate a more conducive review process.

BACKGROUND

Due to its rural setting, the Town of Underhill offers/provides limited services. Although the population is increasing slightly, the demand for additional services is outpacing that population increase. Demand for restaurants, cafes, delis, and small-scale retail is vast, while the availability of these services is scarce. This issue was exacerbated within the last five years with the closing of the Underhill Country Store, formerly located in Underhill Center. As a result, Underhill residents are turning to new businesses, such as the Jericho Market and Union Bank, in the Riverside District in Jericho, located immediately over the Underhill Flats town boundary. In the coming years, more businesses are expected to open in this area, which will be beneficial to Underhill Residents. The Town itself though, becomes dependent on the planning and zoning of another town and loses out on the benefits of having businesses in Town, such as tax revenue and jobs.

While restaurants, cafes, delis, small-scale retail, and other related services are scarce, Underhill has explored and implemented various plans to encourage this type of development. First and foremost, in September 2015, the Town renewed its co-village designation with the Vermont Department of Housing and Community Development for the Underhill Flats/Riverside village center. Further, in February 2017, the Town obtained village designation for Underhill Center. These two village designations offer financial opportunities for those landowners seeking to undertake projects related to multi-family dwellings and commercial development. Additionally, the Town has created a new zoning district – the Underhill Center Village District – that encompasses Underhill Center and relaxes some of the dimensional requirements, as well as permitted uses, from those in the Water Conservation District – the prior zoning district. Together, these actions mark the beginning steps to allow for these services to be provided; however, additional actions will be required in order to realize this goal. See the Economic Development Chapter for more discussion.

**MUNICIPAL ADMINISTRATION**

Underhill 's staff consists of four full-time office staff employees: the Town Clerk (who also currently holds the elected position of Treasurer), Town Administrator, Planning & Zoning Administrator, and Assessing Clerk; one part-time office staff employee: the financial officer; four full-time road crew employees; and a few part-time road crew members. With respect to the full-time office staff, the Town Clerk oversees the Town's land records (including the recordation of documents); helps coordinate the Board of Civil Authority and Board of Abatement; and coordinates local, state and federal elections. The Town Administrator staffs the Selectboard and handles Town-related issues that emerge. The Planning & Zoning Administrator handles short-term and long-term planning related projects, oversees the issuance of zoning permits, handles zoning enforcement matters, and staffs the Planning Commission and Development Review Board. The Assessing Clerk provides assistance to the contracted Assessor in evaluating the value of land and development, as well as assists in annually

setting the Town's grand list. Lastly, the financial officer, in coordination with the Town's Treasurer, oversees the finances of the Town.

Unlike larger cities and towns in Vermont, Underhill does not contain a public works department. Instead, those tasks typically performed by a public works department are handled by the Town's road crew. Tasks routinely performed include, but are not limited to the maintenance and upkeep of public roads, parking lots, road side ditching and bridges. In addition, the road crew is oftentimes first to respond in regards to mitigating hazards resulting from severe weather events. These tasks include plowing, clearing road barriers, fixing washed-out roads, etc. The road crew also has the ability to perform minor maintenance on the Town's heavy equipment. While the road crew provides a range of different services to the residents of Underhill, unfortunately their time is limited, thus requiring the Town to contract out some of the tasks outlined above.

EMERGENCY SERVICES

(POLICE, AMBULANCE/EMS, AND FIRE PROTECTION)

Fire Protection

The Underhill-Jericho Fire Department (UJFD or Fire Department) is the only emergency service that resembles a traditional municipal department in the Town of Underhill. UJFD is financed through contracts with both the Towns of Underhill and Jericho. An annual budget is prepared by the Fire Department and reviewed by both Towns' Selectboards. Additionally, the Fire Department prepares a capital plan for the regular replacement of equipment.

UJFD is largely volunteer (approximately 40 volunteers), with two full-time employees, and is a shared service with the Town of Jericho. One of the fulltime employees is available between 7am to 7pm at a minimum, thereby providing coverage during daytime hours. Outside of that time period, on-call employees/volunteers provide emergency coverage. The volunteers are paid an hourly stipend for emergency calls, as well as weekly training. UJFD has mutual aid agreements with surrounding communities, and the Vermont Air National Guard, to provide additional and specialized equipment when needed.

The UJFD network is comprised of two stations – the headquarters station located along Vermont Route 15 in the Underhill Flats Village District and a substation along Browns Trace in Jericho. Currently, the Fire Department is exploring the construction of another substation somewhere in the New Road/Pleasant Valley Road/Irish Settlement Road area in Underhill. The construction of a substation in this area would assist in improving the Fire Department's service rating. As a result, insurance premiums for residents in eastern Underhill would likely decrease because the response time would be significantly reduced.

Ambulance/EMS

The Town of Underhill contracts with Essex and Cambridge Rescue for ambulance/EMS services, which are readily available and respond to any emergency call. In 2018/2019, UJFD implemented a program that would allow them



to provide EMS services; however, the Fire Department is not intended to provide these services at an equivalent level as Essex and Cambridge Rescue, and is intended to be more of a partner in providing EMS services. For example, the Fire Department is not intended to provide transportation services. Therefore, Essex and Cambridge Rescue are still expected to be retained to help assist in transporting patients, as well as provide emergency response assistance.



Photograph Submitted by Randy Clark

Photograph 6.2 – Underhill-Jericho Fire Department (2013)

Police Services

The Town of Underhill is serviced by the Chittenden County Sheriff and the Vermont State Police. Both entities respond to emergency calls. While both the State Police and Chittenden County Sheriff would already patrol the Town randomly for an unspecified amount of time, the Town has also contracted with the Chittenden County Sheriff to patrol the Town for, on average, an additional 5 to 6 hours per week.

UTILITIES

Water & Septic Systems

The Jericho-Underhill Water District is a separate municipal entity that provides water to the Underhill Flats/Riverside population. The district stretches from the Jericho-Underhill Townline to Poker Hill Road, then up Poker Hill Road for a short distance and includes residences along Sugar Hill Road, Meadow Lane, Jacobs Hill Road, Min's Lane, Park Street, Maple Ridge, and a small portion along River Road. Among other things, this district contains a network of fire hydrants. There are also privately managed common water systems, which exist along Beartown Road in Underhill Center and Timber Ridge Road along Poker Hill Road. Additionally, the Roaring Brook community operates a common water and septic system. As for all other water supply sources and septic systems, they are privately owned and sited.

Solid Waste Disposal

The Town of Underhill is part of the Chittenden Solid Waste District (CSWD), with drop-off centers in Richmond, Essex, Hinesburg, Milton, South Burlington, and Williston. All of the drop-off centers except for Hinesburg accept bulky items and construction debris, while hazardous waste is only accepted at the environmental depot in South Burlington; however, CSWD annually sends rovers to each Town in their service area to pick up hazardous household wastes. Prior to 2019, Underhill had contracted with Casella, a private hauler, to pick up curbside trash and garbage collection, although residents were free to choose another hauler if desired. This program required a sticker, which was sold at the local stores, for each bag of trash put out on the curb. Recycled products were picked up at no charge if they had a sticker. This program ended in 2018, and now residents have the option to choose between three garbage collection companies: Casella, Gauthier Trucking Co., and Myers Container Services Corp among other options. The sticker part of the program was discontinued.

Electricity

Green Mountain Power Company and Vermont Electric Cooperative both provide electricity to the Town. As illustrated in Map 6.1, Green Mountain Power serves the southern portion of eastern Underhill up to Harvey Road, as well as areas along River Road and Vermont Route 15 up to the Underhill/Westford Townline. Vermont Electric Coop provides service to almost the entirety of central and northern Underhill.

Natural Gas

Most residences in Underhill rely on delivered propane or fuel oil for heating; however, over the course of the last decade, Vermont Natural Gas has expanded its service area. Currently, Vermont Gas services a large portion of Underhill Flats. As illustrated in Map 6.1, the Vermont Gas service area includes: Vermont Route 15, up to and

including Roaring Brook; along Poker Hill Road, up to Barrett Lane; the entirety of Sugar Hill Road; the majority of Meadow Lane; Park Street up to the Underhill Flats post office; a small portion of River Road; Harvest Run; Jacobs Hill Road; Min's Lane; a portion of Vermont Farmhouse Road and the majority of Brook Bend.

Internet Coverage

Underhill contains three primary high-speed internet service providers – Comcast Telecommunications Company, Consolidated Communications Company and Mansfield Community Fiber. Other options to the community are available, but are less common. Similar to other rural communities in Vermont, reliable high-speed internet access is not assured within Underhill. Internet providers are reluctant to install the required infrastructure themselves, resulting in the cost of installation being passed onto the consumer. The installation cost can be prohibitive, resulting in landowners foregoing the option to obtain reliable high-speed internet.

Ensuring that residents have reliable high-speed internet access is important, and therefore, the Town should explore what options are available that assist in maximizing high-speed internet service available to its residents. Reliable high-speed internet access is important for a variety of reasons, which include: allowing residents to telecommute to work, thereby reducing the Town's carbon footprint (see Chapter 3 – Energy for more information regarding energy reduction); allowing access to emergency services (see other goals within this Chapter); as well as giving residents the ability to easily coordinate their personal schedules.

Cell Phone Coverage

Cell phone coverage in Underhill is provided by the four major cell phone companies – Verizon, AT&T, Sprint and T-Mobile. For the range of coverage of the four major companies, see Maps 6.3-6.7, where pink represents areas where there is cell phone coverage (as provided by the service providers).³⁰ Where the majority of the Town has coverage by the four providers, the quality and reliability of coverage is “spotty” in various locations of Town due to the rolling topography.

Similar to internet coverage, ensuring that residents have reliable cell phone coverage is important. The Town should explore what options are available that will assist in maximizing cell phone service to the Town's residents.

OTHER SERVICES

Post Offices

The Town of Underhill contains two Post Offices – one in Underhill Center (05490) and the other in Underhill Flats (05489). Both Post Offices provide counter service and post office boxes. The Underhill Center Post Office does not distribute any mail; therefore any mailing address containing a zip code of “05490” would only be associated with a post office box in the Underhill Center Post Office. The Underhill Flats Post Office provides mail delivery for the entire Town and is associated with the “05489” zip code.

FUN FACT:

UNDERHILL HAS TWO ZIP CODES: 05489, LOCATED IN UNDERHILL FLATS, AND SERVES ALL OF UNDERHILL; AND 05490, LOCATED IN UNDERHILL CENTER, AND ONLY SERVES THOSE WITH POST OFFICE BOXES.

Library

The Underhill-Jericho Library District is serviced by the Deborah Rawson Memorial Library. As part of the Vermont library network, Underhill residents have the ability to borrow books from other libraries through the State of Vermont via their online catalog. A “home-card” system also allows members to borrow books at eleven nearby libraries. In addition, the Library offers high-speed wireless internet, as well as offering services to the

³⁰ Information obtained from Vermont Department of Public Service:

<https://vtpsd.maps.arcgis.com/apps/webappviewer/index.html?id=444a3d49c2374d509958f1c0e1d0d21b>

residents with disabilities through the Special Services Unit of the Vermont Department of Libraries.

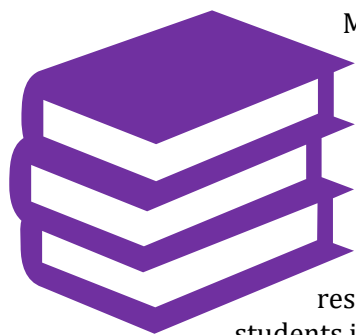
Child Care

Similar to Statewide trends, Underhill has limited child care options. As a result, the cost of child care is becoming financially burdensome for many families. The most recognized child care establishment in Underhill is Poker Hill School, which includes both daycare and pre-school services. Since the last plan, the Maple Leaf Farm Rehabilitation Center closed and was purchased by ReTribe Transformations, which offer alternative education programs. In 2018, ReTribe Transformations amended their conditional use approval to include child care services. While the approval of this service is a step in the right direction, there will still be a shortage of child care services within the Town and region.

In an effort to increase the availability of these services, the Planning Commission plans to explore potential solutions to address the issue. In order to understand the issues relating to child care, the Town will need to liaison with private organizations and State agencies to obtain relevant information. The Town will also need to hold a forum to better understand the local issues related to child care. During preliminary discussions amongst the Planning Commission, the possibility of amending the Town's zoning regulation to facilitate a more conducive review process was discussed as a potential solution.

Education

Underhill is served by two pre-schools: Saxon Hill School in Jericho and Poker Hill School in Underhill, and one elementary (pre-Kindergarten through 4th grade) school – Underhill Central School located on Irish Settlement Road. Until the Fall of 2019, the Underhill Incorporated District (I.D.) School also served Underhill as a school system for pre-Kindergarten through 4th grade; however, ID school was closed prior to the 2019-2020 school year. The I.D. School student body was transferred to Underhill Central School.



Middle school students (grades 5-8) in both Underhill and Jericho attend Browns River Middle School on River Road in Jericho. Mt. Mansfield Union High School (MMU) provides education to students in grades 9 to 12 and serves students who live in the Towns of Underhill, Bolton, Huntington, Jericho, and Richmond. MMU is located along Browns Trace Road in Jericho.

Underhill Central School, Browns River Middle School and Mt. Mansfield Union High School are all part of the Mount Mansfield Unified Union School District. In 2019, residents in the Mt. Mansfield Unified Union School District voted to merge Huntington students into the Unified School District. As a result, those students who attended high school in Huntington will now attend high school at Mt. Mansfield Union High School.

As demonstrated in Table 6.1, total student enrollment, including enrollment in pre-kindergarten, from the Fall of 2014 to the Spring of 2019 has slightly decreased.³¹ When examining the student population without the pre-kindergarten student population, a noticeable decrease in the student population has occurred – a 4.8 percent reduction. The decrease in student enrollment over the past five years is consistent with the statewide trend. Going forward, the student enrollment numbers in the aforementioned schools, specifically Underhill Central School and Mt. Mansfield Union High School will likely differ from current enrollment.

³¹ <https://education.vermont.gov/data-and-reporting/school-reports>

Table 6.1 – School Enrollment Including Pre-Kindergarten (in # of Students)

School	14-15	15-16	16-17	17-18	18-19
Underhill Central School	148	133	134	135	130
Underhill ID School	106	121	143	145	139
Browns River Middle School	418	411	405	408	412
Mt. Mansfield Union High School	814	790	800	787	782
Total Enrollment	1486	1455	1,482	1,475	1,463

Source(s): State of Vermont, Agency of Education

Table 6.2 – School Enrollment without Pre-Kindergarten (in # of Students)

School	14-15	15-16	16-17	17-18	18-19
Underhill Central School	118	103	103	98	95
Underhill ID School	98	91	96	95	89
Browns River Middle School	418	411	405	408	412
Mt. Mansfield Union High School	814	790	800	787	782
Total Enrollment	1446	1395	1,404	1,388	1,378

Source(s): State of Vermont, Agency of Education

Recreation & Parks

Underhill contains various parks & recreation opportunities for its residents and the general public. Both the Underhill Flats Village and Underhill Center Village contain a “town green,” both small in nature. In addition to the “greens,” the Town contains Edwin Moore Park, directly across from Town Hall; the Town Pond, located on Stevensville Road; and Casey’s Hill, located on Mountain Road. See Chapter X for more information relating to recreation. In addition, Table 6.3 provides an overview of the publicly owned park and recreation land, as well as their associated facilities.

Table 6.3 – Publicly Owned Park & Recreation Land with Associated Facilities

Site	Location	Acres	Facilities
Green – Underhill Center	Pleasant Valley Road	0.30 Acres	None
Green – Underhill Flats	Park Street	0.20 Acres	None
Park – Casey’s Hill	Mountain Road	8.05 Acres	None
Park – Edwin Moore Park	Pleasant Valley Road	1.75 Acres	Picnic Tables, Benches, Skating Rink (Winter)
Park – Town Pond	Stevensville Road	2.00 Acres	Swimming Pond; Tennis Courts; Basketball Court; Playground; Picnic Tables
Trail – Crane Brook Conservation District	New Road, Crane Brook Trail, Fuller Road	87.52 Acres	None

Source(s): 2018 Town Report

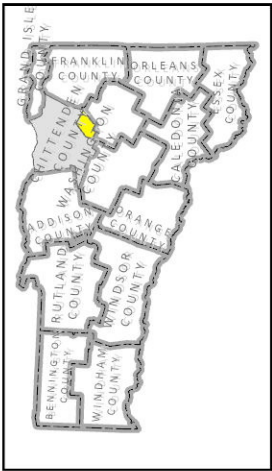
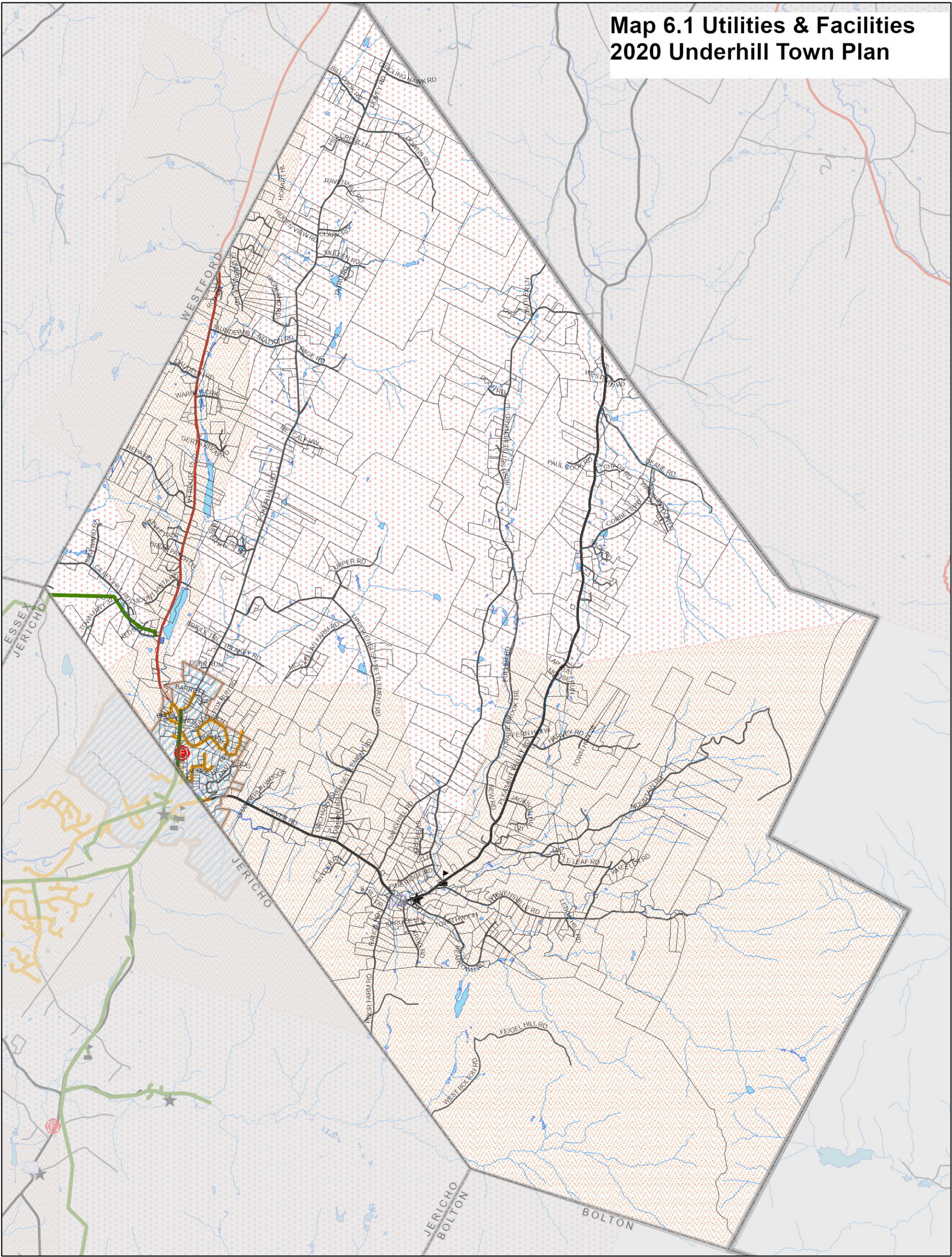
While not a service provided by the Town, Underhill State Park, owned and operated by the State of Vermont, is located in the eastern part of Town. The park is part of the 39,837-acre Mt. Mansfield State Forest, with the main

entrance located at the end of Mountain Road, while an ancillary entrance is located at the end of Stevensville Road.³² Underhill State Park provides camping and hiking opportunities, as well as picnic and picnic shelter areas.³³

³² <https://vtstateparks.com/underhill.html>

³³ <https://vtstateparks.com/underhill.html>

Map 6.1 Utilities & Facilities
2020 Underhill Town Plan



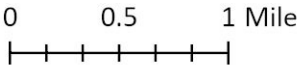
Legend

- Facilities**

 - School
 - Fire Station
 - Town Hall and/or Library
 - Post Office
 - 3-Phase Power
 - Natural Gas Infrastructure
 - Jericho-Underhill Water District
 - Stream Centerline
- Road Centerline**

 - State Highway
 - Town Highway Class 2
 - Town Highway Class 3
 - Town Highway Class 4
 - Water Body
 - 2017 Tax Parcel Boundary
- Electric Utility**

 - Green Mountain Power
 - Vermont Electric Co-Op



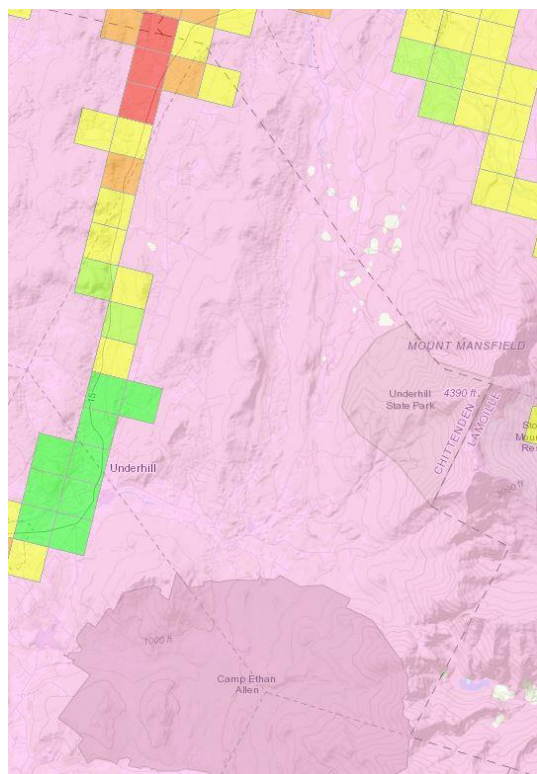
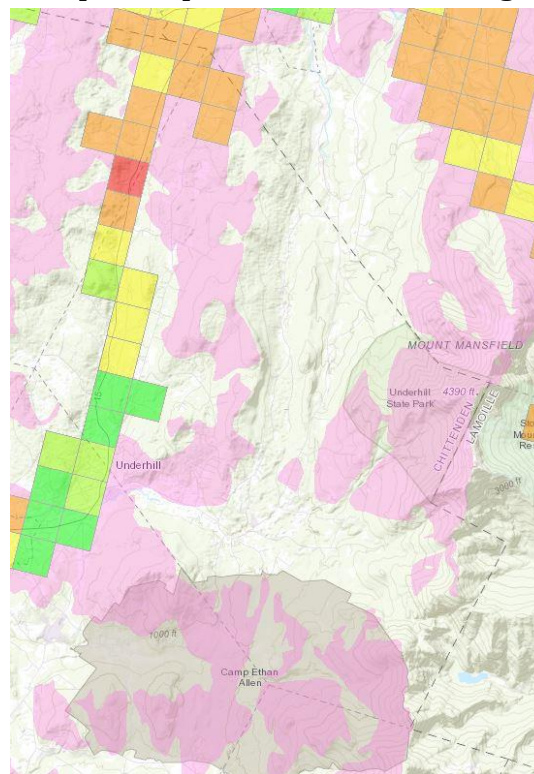
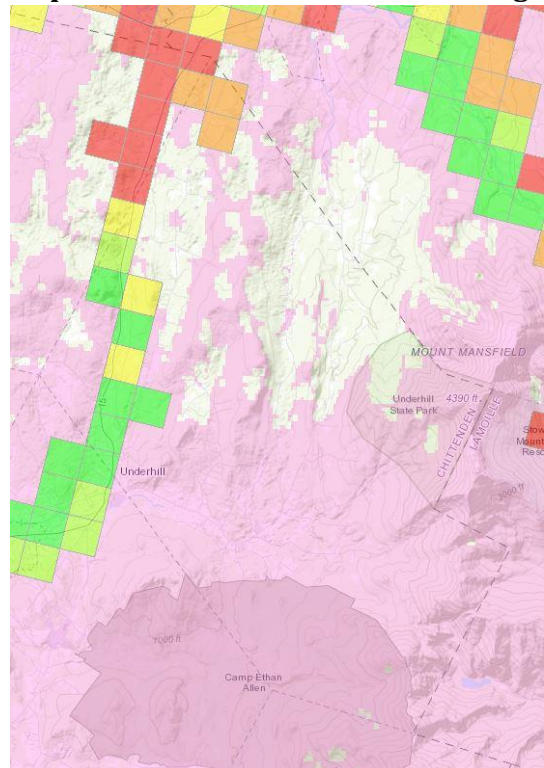
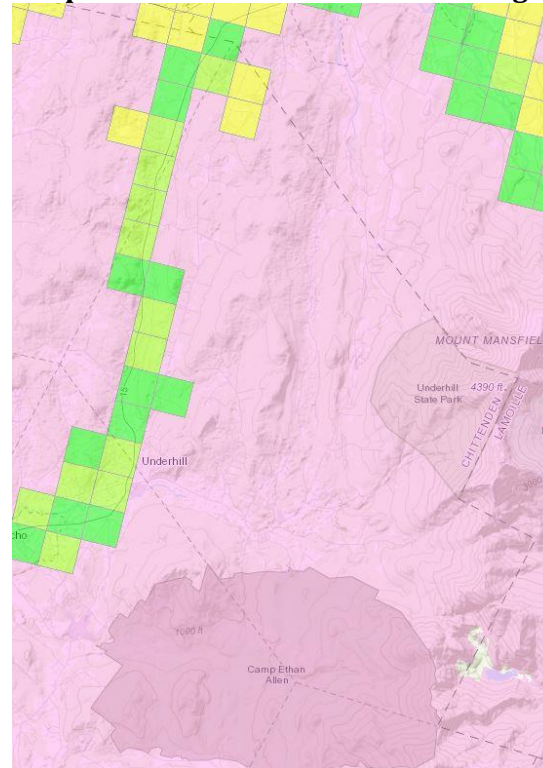
Source: Road Centerline - E911, 2020; Surface Water - VHD, VT GAS Lines, 2019; Map created by M. Needle using ArcGIS Pro. All data is in State Plane Coordinate System, NAD 1983.

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.

CHITTENDEN COUNTY RPC
Communities Planning Together
2/19/2020

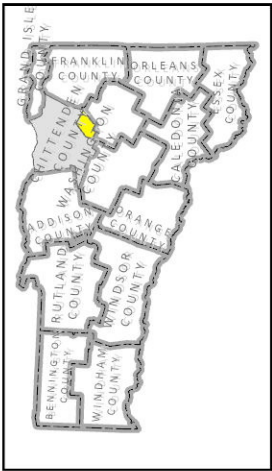
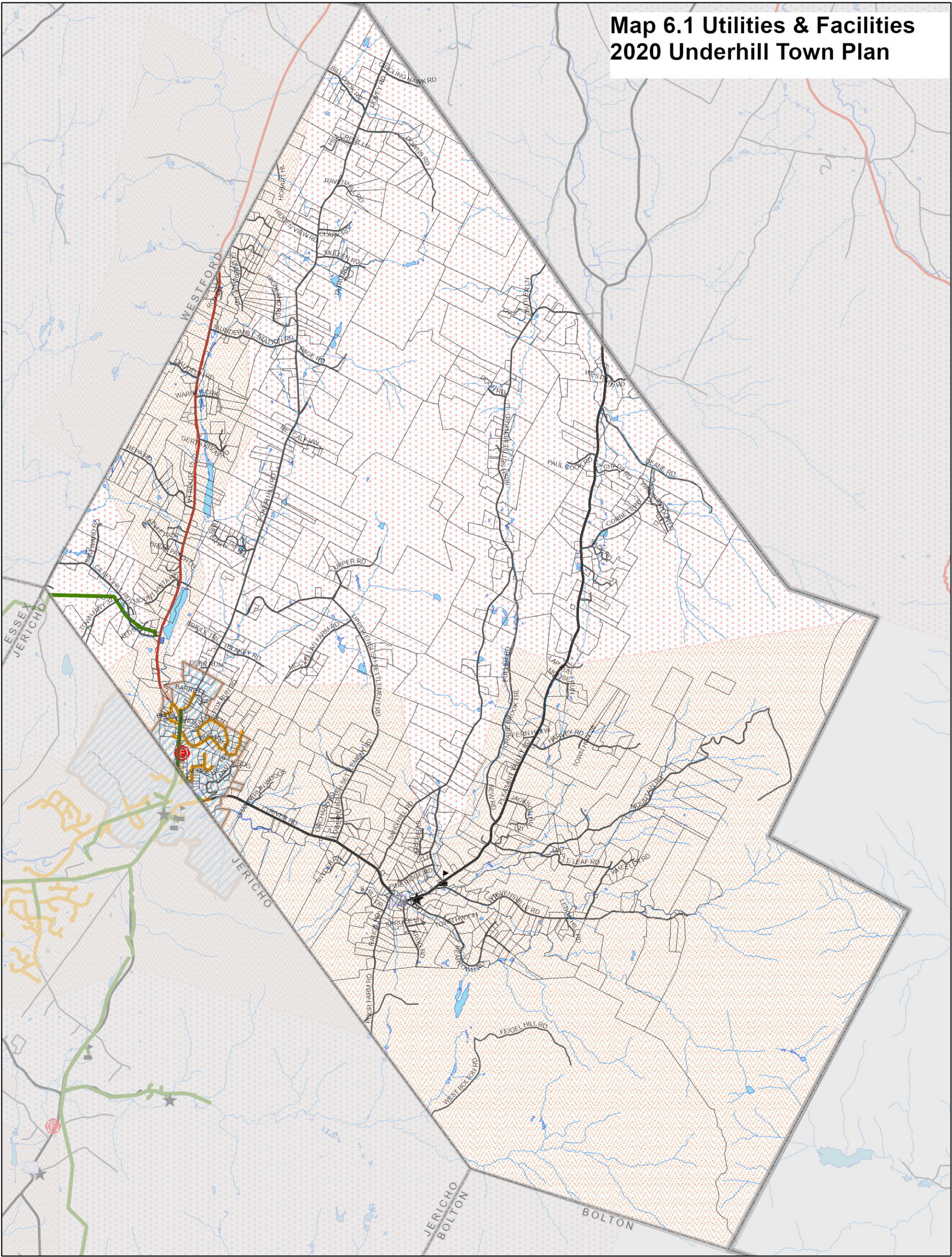
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Maps 6.2 – 6-5 – Cell Phone Coverage Areas

Map 6.2 - AT&T Cell Phone Coverage**Map 6.3 - Sprint Cell Phone Coverage****Map 6.4 - T-Mobile Cell Phone Coverage****Map 6.5 - Verizon Cell Phone Coverage**

Note: the pink color represents areas where there is cell service, as provided by the cell provided, while the remaining colors represent the strength of the signal during the drive test (green indicated great signal strength, while red indicates no signal strength).

Map 6.1 Utilities & Facilities
2020 Underhill Town Plan



Legend

- | | |
|----------------------------------|--------------------------|
| Facilities | Road Centerline |
| School | State Highway |
| Fire Station | Town Highway Class 2 |
| Town Hall and/or Library | Town Highway Class 3 |
| Post Office | Town Highway Class 4 |
| 3-Phase Power | Water Body |
| Natural Gas Infrastructure | 2017 Tax Parcel Boundary |
| Jericho-Underhill Water District | Electric Utility |
| Stream Centerline | Green Mountain Power |
| | Vermont Electric Co-Op |

0 0.5 1 Mile



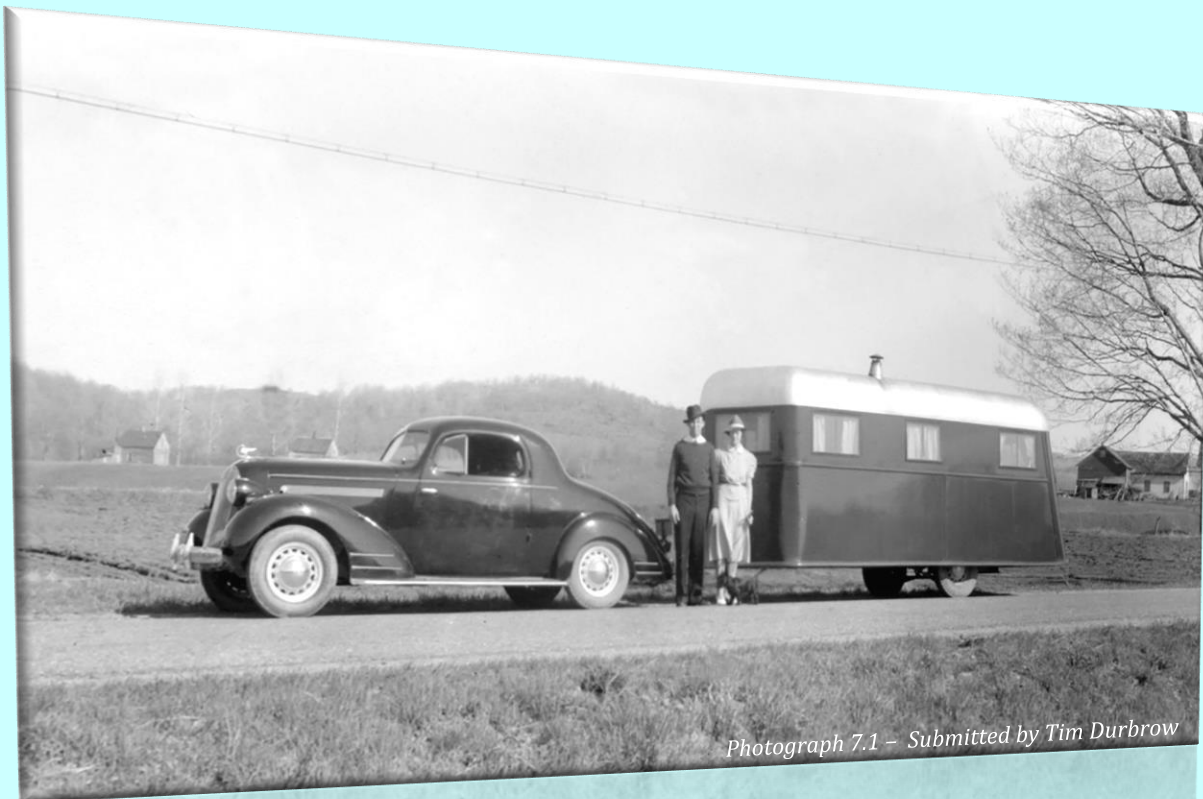
Source: Road Centerline - E911, 2020; Surface Water - VHD, VT GAS Lines, 2019; Map created by M. Needle using ArcGIS Pro. All data is in State Plane Coordinate System, NAD 1983.

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2/19/2020

Document Path: D:\Projects\20\Underhill\2020TownPlanMaps.aprx

Chapter 7



Photograph 7.1 – Submitted by Tim Durbrow

Housing

GOAL 1: Increase the supply of housing opportunities to serve residents of all income levels, age groups and special needs.

GOAL 2: Maintain a balance among: the need for housing in the community; encouraging housing growth in Underhill’s two village centers; and the impact on the environment, public facilities and services.

POLICY 1: Support the creation of affordable housing stock.

Strategies:

1. Explore alternative strategies to individual wells and septic systems to serve Underhill Center and Underhill Flats that would support greater density, such as community wells and shared septic systems.
2. Research the feasibility of extending municipal water and sewer.
3. Review and consider providing greater density opportunities in areas designated as village centers, especially by encouraging duplexes and multi-family dwellings.
4. Evaluate the minimum lot size in village growth centers and determine if it should be reduced to encourage increased density in the applicable areas.
5. Encourage affordable housing by considering regulations that remove some of the restrictions on accessory dwellings.
6. Review and consider results from the impending statewide (and potential county-level) housing needs assessment study to guide Town housing policies.
7. Review Underhill’s 2021 housing needs assessment that studied the housing needs of the community (available on the Town’s website) and devise strategies to meet these needs.
8. Continue to apply for grants and other financial opportunities that consider and incorporate strategies provided by the housing needs study.
9. Recommend to the Selectboard the creation of a Housing Board.

POLICY 2: Support the creation of housing stock that allows for young individuals, young families, and older community members to remain in the community.

Strategies:

1. Host a housing forum to solicit resident input about affordable housing needs in Underhill.
2. Explore the feasibility of creating a Neighborhood Area Designation for Underhill’s village centers: Underhill Center and Underhill Flats.
3. Encourage multi-generational and multi-income housing by supporting planned residential and planned unit developments, especially in the Town’s village centers.
4. Continue to evaluate where multi-unit structures are appropriate.
5. Explore the feasibility of cottage housing.
6. Work with Chittenden County Regional Planning Commission to implement appropriate housing-related strategies in the ECOS Plan in Underhill.

BACKGROUND

Housing is an essential component of any community and the type, cost, distribution, and location of housing significantly impacts the physical appearance and social makeup of a community. Housing places demands on public services, and if built or placed inappropriately, can negatively impact natural and environmental resources. All of the abovementioned factors must be considered when new development is proposed.

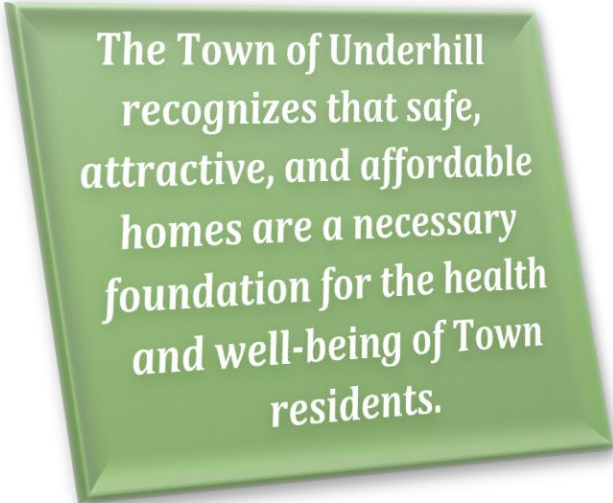
The Town of Underhill recognizes that safe, attractive, and affordable homes are a necessary foundation for the health and well-being of Town residents. This concept is in alignment with Vermont State statute 24 V.S.A. § 4302, which encourages safe and affordable housing for all Vermonters.

To ensure the availability of safe and affordable housing for all residents, the Vermont Municipal & Regional Planning & Development Act (24 V.S.A. Chapter 117) requires that municipal plans address the housing needs of low and moderate-income persons.

Affordable housing is defined under 24 V.S.A. § 4303 as:

Housing that is owned or rented by its inhabitants, whose gross annual income does not exceed 80% of the county median income, or 80% of the standard metropolitan statistical area (MSA), as defined by the U.S. Department of Housing & Urban Development, and the total annual cost of housing is not more than 30% of the household's gross income.

In reference to the affordable housing definition above, 80% of Chittenden County's median income was approximately \$53,525 in 2018, while 80% of Underhill's median income was approximately \$79,185. Thirty percent (30%) of the median household income for Chittenden County was approximately \$20,072, and for the Town of Underhill, 30% of the median household income was approximately \$29,694.



The Town of Underhill recognizes that safe, attractive, and affordable homes are a necessary foundation for the health and well-being of Town residents.

The health of the local and regional economy is often related to the availability and affordability of housing. The location and design of dwellings can also contribute to the cost of providing infrastructure and services to the area. Vermont's zoning laws are intentionally permissive of accessory dwelling units, recognizing their role in creation of additional, affordable housing. Accessory dwellings are separate living areas with their own eating, sanitary, and rooming facilities, and may be attached or detached from the principal dwelling unit. These dwellings are an important tool to help expand the affordable housing stock not only at the municipal level, but also on the regional and state levels. In addition, accessory dwelling units can provide multiple benefits to the property and community, including a revenue source or a mechanism to allow aging parents to reside in close proximity to family.

PLANNING ISSUES RELATING TO EXISTING HOUSING IN UNDERHILL

Underhill has struggled to find effective methods to encourage affordable housing due to (i) the characteristics of the community's existing housing stock – mainly single-family dwellings, (ii) the Town's efforts to preserve its rural character, and (iii) a statewide lack of affordable water and wastewater solutions. Since rural character is commonly associated with single-family residences on larger lots, multi-family dwellings can be perceived as incompatible with rural life. However, multi-family dwellings can be appropriate for village centers, and zoning tools, such as setbacks, can incorporate multi-family dwellings without impacting the rural character of the Town.

With respect to the community's desire to retain its the rural character, the Planning Commission intends to research feasible areas to expand housing options (which may include multi-family dwellings) and update the zoning regulations accordingly. While 59.3% of 2019 survey participants responded that they were either against or strongly against multi-family housing in Underhill, exploring less restrictive zoning options relating to multi-family housing may be unavoidable, especially if the Town desires to address affordable housing.³⁴ To assist with the housing issues Underhill faces, especially in regards to affordable housing and multi-family housing, the Town applied for, and was awarded, a grant by the Vermont Department of Housing and Community Development to conduct a housing needs assessment. This housing needs assessment was completed in 2021 and recommended strategies and initiatives to allow more affordable housing within the Town. To analyze and choose which strategies and initiatives to employ, the creation of a Housing Board is recommended.

Prior to the 2011 *Underhill Unified Land Use & Development Regulations*, two-family dwellings were not permitted in every district (though accessory dwellings were permitted) in Town. After the update, which promoted the extension of two-family dwellings, these dwellings were permitted uses in every zoning district. In addition, the updates reduced restrictions on accessory dwellings (though those were tightened in the 2018 update to align with State statutes), as well as provided additional standards for Planned Unit Developments (PUDs) and Planned Residential Developments (PRDs). PUDs and PRDs allow an applicant greater flexibility in the design and layout of the lots, structures, and infrastructure; however, there are typically additional requirements that the applicant must satisfy, such as designating land as open space, etc. Density bonuses were available for projects that satisfied certain requirements; however, as part of the aforementioned 2018 update, these particular requirements were found to not further the goals and policies of the Town. Going forward, density bonuses could be one potential mechanism to encourage affordable housing; however, these awards would need to be better tailored to Underhill and should be researched accordingly.

As mentioned above, the Planning Commission created a new zoning district in 2018 – the Underhill Center Village District. This new district reduced the dimensional requirements of the Water Conservation District to more manageable requirements. The Underhill Center Village District was aimed at better reflecting the character of the old Underhill Center historic center, which contained small lot sizes and buildings close to the property lines. One intended result of the smaller lot size requirement was to allow for greater density, which satisfies the goal of directing denser development towards the Town's two centers. It is worth noting that, greater density does not necessarily equal affordable housing. For example, a new property in Underhill Center recently sold for more than \$400,000, well above the Town's median household cost.

EXISTING HOUSING INVENTORY

Single-Family Dwellings

Underhill's existing housing inventory is largely comprised of single-family dwellings, including mobile homes (94.04%), and a small segment of two-family (5.29%) and multi-family dwellings (0.69%). Table 7.1 below provides a delineation of the residences in Town classified by type, while Table 7.2 provides information regarding the year that the residences were built. The significant increase of residences built between 1970 and 1989 (563 buildings) correlates with the

Table 7.1 – Number of Residences Based on Type

Type of Residence	# of Buildings	% of Buildings
Single-Family Dwelling	1,034	89.29%
Single-Family Dwelling with Accessory Dwelling	30	2.59%
Two-Family Dwellings	61	5.27%
Multi-Family Dwellings	8	0.69%
Mobile Homes	25	2.16%
Total	1158	

Source: Underhill Assessor's Office

³⁴ Questions 7, 9-12 of the 2020 Town Plan Survey.

Table 7.2 – Number of Residences Based on Year Built

Year Built	# of Buildings	% of Buildings
Before 1950	187	15.74%
1950-1959	17	1.43%
1960-1969	108	9.09%
1970-1979	304	25.59%
1980-1989	266	22.39%
1990-1999	133	11.20%
2000-2009	105	8.84%
2010-Present	68	5.72%

Source: Underhill Assessor's Office

Note: The "Number of Buildings" equals 1,188, as accessory dwellings are including in this count.

population boom that occurred, a period during which Underhill grew from 1,198 people to 2,799 – a 1,601 person increase.³⁵ Because of Underhill's rural character, as well as its role as a bedroom community for the greater Burlington area, the trend of single-family dwellings is likely to continue, at least in the immediate future.

When reviewing the affordability of housing in Underhill, pressing issues emerge, especially when reviewing affordability based on the median household income for both Chittenden County and the State of Vermont. As shown in Table 7.3, the median household income in Underhill is \$98,981, while in Chittenden County the median household income is \$66,906 and the State's median household income is \$57,808. As a result, what is considered affordable for Underhill residents is not a true reflection of what is

considered affordable for residents of Chittenden County and the State of Vermont. The average Underhill household can afford a home that is \$145,500 more expensive than the average household in Vermont can afford.

When reviewing the median household income of the average Vermonter or Chittenden County resident in relation to the assessed values of residences in Underhill, the results are concerning as they relate to affordable housing. Specifically, the majority of households in the Town of Underhill exceed the affordability threshold, as

demonstrated in Tables 7.4 and 7.5 below. Table 7.6 illustrates the affordability of housing based on the assessed value in relation to the median household income for Underhill Residents. Please note, the assessed value changes in each of these three tables since the assessed value relates to the percent of median income of a household in, respectively, the Town, County and State.

Table 7.3 – Median Household Income and Housing Affordability

Government Entity	Median Income	Cost of an Affordable House
Town of Underhill	\$98,981	\$347,500
Chittenden County	\$66,906	\$235,000
State of Vermont	\$57,808	\$202,000

Source: Underhill Assessor's Office and Vermont Housing Data Website (housingdata.org)

Table 7.4 – Approximate Cost of Homeownership (State Median Income)

Assessed Value	Affordability Range	Single-Family Dwellings	
	Median State Income: \$57,808	# of Dwellings	% of Units
Less than \$99,500	Less than 50%	0	0.00%
\$99,500 - \$161,000	50% to 80%	28	2.42%
\$161,000 - \$202,000	80% to 100%	82	7.08%
\$202,000 - \$243,500	100% to 120%	176	15.20%
\$243,000 - \$365,000	120% to 180%	520	44.90%
\$365,000 or More	More than 180%	352	30.40%

Source: Underhill Assessor's Office and Vermont Housing Data Website (housingdata.org)

As seen in Table 7.4, less than 10% of the housing stock in Underhill is considered affordable to a household earning the median State household income. When observing these figures for Chittenden County (see Table 7.5), the number is moderately higher,

³⁵ United States Decennial Census

Chapter 7 – Housing though still concerning, as 21.42% of the housing stock in Underhill is assessed at a value that is considered affordable if a household is earning the median county household income or less. The data in Tables 7.4 and 7.5 illustrate an exclusionary effect, as those households that earn below the State or Chittenden County

Table 7.5 – Approximate Cost of Homeownership (County Median Income)

Assessed Value	Affordability Range	Single-Family Dwellings	
	Median County Income: \$66,906	# of Dwellings	% of Units
Less than \$115,000	Less than 50%	1	0.09%
\$115,000 - \$186,500	50% to 80%	65	5.61%
\$186,500 - \$235,000	80% to 100%	182	15.72%
\$235,000 - \$281,500	100% to 120%	227	19.60%
\$281,500 - \$422,500	120% to 180%	455	39.29%
\$422,500 or More	More than 180%	228	19.69%

Source: Underhill Assessor's Office and Vermont Housing Data Website (housingdata.org)

median household income will have a hard time finding a residence in Underhill. This is supported by the data shown in Table 7.6, in which approximately two-thirds of the housing stock in Underhill is considered affordable should the household earn the median household income of Underhill: \$98,981.

This exclusionary effect can be observed in the average sale price of single-family dwellings over the past five years. Table 7.7 provides data relating to the cost of single-family dwellings and should be taken into consideration in relation to the County and State household median incomes - \$66,906 and \$57,808 respectively.

Table 7.6 – Approximate Cost of Homeownership (Underhill Median Income)

Assessed Value	Affordability Range	Single-Family Dwellings	
	Median County Income: \$98,981	# of Dwellings	% of Units
Less than \$172,500	Less than 50%	37	3.20%
\$172,500 - \$278,000	50% to 80%	417	36.01%
\$278,000 - \$347,500	80% to 100%	316	27.29%
\$347,500 - \$416,500	100% to 120%	151	13.04%
\$416,500 - \$625,000	120% to 180%	197	17.01%
\$625,000 or More	More than 180%	40	3.45%

Source: Underhill Assessor's Office and Vermont Housing Data Website (housingdata.org)

In reviewing Table 7.7, the price at which single-family dwellings are sold are compared with the assessed values, last performed in 2014. Oftentimes, Town assessed values are lower than what the market value typically yields, which seemingly makes the comparisons from 2015 to 2016 an anomaly. In 2023, the Town will be performing a

Table 7.7 – Lowest Sale Price, Average Sale Price, Highest Sale Price of Single-Family Dwellings in Underhill (2015-2020)

Sale Year	# of Sales	Lowest Price	Highest Price	Average Price	Averaged Assessed Value
2015 – 2016	30	\$125,000	\$605,000	\$312,602	\$316,683
2016 – 2017	46	\$190,000	\$695,000	\$306,058	\$299,811
2017 – 2018	32	\$171,000	\$1,040,000	\$367,307	\$352,176
2018 – 2019	36	\$185,000	\$713,000	\$399,815	\$383,794
2019 – 2020*	47	\$190,000	\$695,000	\$371,515	\$313,447

Source: Underhill Assessor's Office and Vermont Housing Data Website (housingdata.org)

Affordable Cost of a House Based on State Median Household Income: \$202,000

Affordable Cost of a House Based on the Chittenden County Median Household Income: \$235,000

*April 1, 2019 thru January 31, 2020 (all other years are April 1 to March 31)

Town-wide reassessment for the first time in nine years. At this time, the assessed values are anticipated to reflect market value.

Exploring the data in Table 7.7 in more depth, the average price for a single-family dwelling in Underhill in each of the past 5 years exceeds what is considered affordable if a household is earning the State's median household income (\$202,000). Similarly, the average price for a single-family household in Underhill exceeds what is considered affordable if a household is earning the Chittenden County median household income (\$235,000) (see Table 7.7). More concerning is that the lowest price paid for a single-family dwelling between 2019 and 2020 was only \$12,000 less than what is considered affordable statewide.

FUN FACT:

BETWEEN APRIL 1, 2004 AND MARCH 31, 2005, THE AVERAGE SALES PRICE OF A SINGLE-FAMILY DWELLING WAS \$246,385 (49 SALES), WELL ABOVE THE AVERAGE ASSESSED VALUE OF \$157,827.

Rental Housing

In Underhill, there are 43 accessory dwellings, 43 two-family dwellings and 6 multi-family dwellings currently serving as rental housing.³⁶ As provided by the Vermont Housing Data website, the median gross rent for Vermont is \$945; for Chittenden County, \$1,186; and for Underhill, \$956. Therefore, the median gross rent for Underhill is in-line with the State.³⁷ Unlike the State of Vermont and Chittenden County, where rent has increased from \$781 to \$945 and from \$951 to \$1,186, respectively, between 2009 and 2017, the rental cost has decreased in the Town of Underhill, decreasing from \$1,026 to \$956.³⁸ The median household income for renters in the Town of Underhill dwarfs the median household income for renters Statewide and Countywide. As a result, renters in Underhill do not seem to be experiencing the same type of burden that Statewide and Countywide renters are experiencing. In fact, renters in Underhill appear to easily have the means to satisfy their rent, as rent is considered affordable, unlike renters in Chittenden County and the State of Vermont. See Table 7.8 for more information.

Table 7.8 – Rental Housing Data

Government Entity	Median Household (Renters) Income (2017)	Affordable Rent (2017)*	Median Gross Rent (2009)	Median Gross Renter (2017)
Town of Underhill	\$85,547	\$25,664.10	\$1,026 per month \$12,312 per year	\$956 per month \$11,472 per year
Chittenden County	\$39,989	\$11,996.70	\$951 per month \$11,412 per year	\$1,186 per month \$14,232 per year
State of Vermont	\$33,949	\$10,184.70	\$781 per month \$9,372 per year	\$945 per month \$11,340 per year

Source: Underhill Assessor's Office and Vermont Housing Data Website ([housingdata.org](https://www.housingdata.org))

*Assumed 30% of Median Household (Renters) Income (Utilities Included)

Unfortunately, additional information relating to rental units in Underhill is limited, most likely due to the fact that these units are either accessory dwellings or two-family dwellings, and not the more typical multi-unit structures often associated with rental units. As a result, ascertaining vacancy rates is a difficult feat, particularly since the

³⁶ Data supplied by the Underhill Assessor's Office

³⁷ <https://www.housingdata.org/profile/rental-housing-costs/median-gross-rent>

³⁸ <https://www.housingdata.org/profile/rental-housing-costs/median-gross-rent>

advertising is not necessarily done through the normal channels typically associated with rental units.

Other Types of Housing

With respect to other types of housing, such as group housing, senior housing, and public and assisted housing opportunities, Underhill does not contain any of these types of facilities. While senior housing is desired by many residents, construction of any senior housing has yet to be realized. Going forward, the Town should explore mechanisms that would encourage these alternative housing options, especially senior housing.

HOUSING AFFORDABILITY

Adequate and affordable housing is central to a sustainable and healthy community. Vermont State statute defines affordable housing as the following:

(1) “Affordable housing” means either of the following:

(A) Owner-occupied housing for which the total annual cost of ownership, including principal, interest, taxes, insurance, and condominium association fees, does not exceed 30 percent of the gross annual income of a household at 120 percent of the highest of the following:

- (i) The county median income, as defined by the U.S. Department of Housing and Urban Development;
- (ii) The standard metropolitan statistical area median income if the municipality is located in such an area, as defined by the U.S. Department of Housing and Urban Development; or
- (iii) The statewide median income, as defined by the U.S. Department of Housing and Urban Development.

(B) Rental housing for which the total annual cost of renting, including rent, utilities, and condominium association fees, does not exceed 30 percent of the gross annual income of a household at 80 percent of the highest of the following:

- (i) The county median income, as defined by the U.S. Department of Housing and Urban Development;
- (ii) The standard metropolitan statistical area median income if the municipality is located in such an area, as defined by the U.S. Department of Housing and Urban Development; or
- (iii) The statewide median income, as defined by the U.S. Department of Housing and Urban Development.

Housing costs for renters include, but are not limited to, rent and utilities; while housing costs for homeowners include, but are not limited to, mortgage payments, property taxes, insurance, and association fees (if applicable).

As stated at the beginning of this chapter, the Town of Underhill has struggled to find effective methods to encourage affordable housing largely due to the characteristics of the local and regional communities. Some of the constraints that inhibit affordable housing are:

- High land prices in Underhill and Chittenden County;
- Undeveloped parcels are becoming more challenging to locate for construction projects;
- Underhill does not contain municipal sewer, and therefore, all new homes must be designed and installed with a septic system (unshared or shared);
- The cost of providing access to drinking water (generally by drilling a well);

- The majority of Underhill's properties are in the Mt. Mansfield Scenic Preservation District (10-acre minimum lot requirement) or the Soil & Water Conservation District (15-acre minimum lot requirement);
- The Town prohibits development over 1500 ft. in elevation; and
- The Town has 3,654.7 acres in Town Land Contracts and 9,370.4 acres in State Current Use Contracts (a Total of 13,025.1 acres, which represents approximately 39.6% of the Town).

To overcome these obstacles and improve the affordable housing issue in Underhill, identifying and revising regulatory barriers would likely yield the greatest improvement. Potential regulatory amendments that could be considered are: allowing increased density in the village centers where services and infrastructure have the ability to grow, while also keeping development in line with municipal services; reviewing and relaxing the zoning requirements for multi-family dwelling where appropriate; reviewing and relaxing zoning district dimensional requirements where appropriate; reviewing and relaxing the requirements for accessory dwellings where appropriate; and reviewing and relaxing the requirements for PUDs and PRDs. These efforts could potentially lead to changes that encourage the development of affordable and fair housing units.

REGIONAL HOUSING NEEDS

The prolonged housing shortage in Chittenden County has continued to act as a barrier to low- to moderate-income residents searching for affordable housing. The Chittenden County Regional Planning Commission's adopted ECOS Plan is a Regional and Metropolitan Transportation Plan that is designed to manage sustainable growth while protecting resources. The ECOS Plan includes strategies to improve the community by increasing opportunities for safe, energy efficient, affordable, and fair housing for all types of households. Furthermore, the Building Homes Together campaign is a regional initiative calling for more housing development and more affordable housing to help address the housing shortage in the region.

Additionally, since the 1970s, the State has promoted development policies and programs that maintain and enhance Vermont's historic development pattern of compact centers surrounded by a rural landscape. In 2013, the Vermont legislature adopted the Neighborhood Development Area designation to encourage development around designated villages and downtowns. This program provides special permit and tax incentives for communities and developers that commit to building mixed-income housing within and adjacent to designated downtowns, village centers, new town centers, and growth centers. This intent of the program is to support and encourage redevelopment and development in areas planned for growth.

Currently, the Town contains two village designations – Underhill Center and Underhill Flats Village Center. The Town should explore how to promote this program, which could potentially be a catalyst for the development of more affordable housing. For more information, see Chapter 8, Economic Development.

Chapter 8



Economic Development

GOAL 1: Maintain and increase working landscapes.

GOAL 2: Expand local economic opportunities.

POLICY 1: Promote and enable local economic activity.

Strategies:

1. Create a database of home businesses and other commercial establishments in Town to post on the Town's website.
 2. Identify infrastructure required to support economic activity in Underhill.
 3. Conduct a focus group meeting to obtain a better understanding of the recreation-related interests in Town, as well as how to support them.
 4. Explore the feasibility of creating a master plan pertaining to recreation tourism in the Town.
 5. Consider land use regulations that provide opportunities for appropriate recreational, tourism, and hospitality development.
 6. Review land use regulations and consider amending them to provide opportunities for appropriate commercial development in village centers, and, if appropriate, in other areas of Underhill.
 7. Explore strategies to alleviate administrative obstacles, where appropriate, for new commercial development.
 8. Renew the Village Designations for both the Underhill Flats/Riverside and Underhill Center Village Centers.
 9. Through the State, promote financial incentives available to property owners within the designated Underhill Flats Village Center and Underhill Center Village Center.
 10. Communicate with the Town of Jericho on planning commercial opportunities in the Underhill Flats/Riverside area.
-

POLICY 2: Encourage and promote lands managed for agriculture, forestry, and other uses of natural resources that maintain Underhill's rural character.

Strategies:

1. Hold public forums to determine what challenges exist for maintaining working lands and for maintaining and increasing local business opportunities.
2. Hold educational workshops to discuss best management practices to protect the sustainability of working lands and agricultural and forest opportunities.
3. Review zoning regulations to assess whether diversification of agricultural businesses is possible, not restricted by local regulations, and to ensure that access to working lands is protected during the subdivision review process.
4. Continue to support local farmers markets and locally grown agricultural products and consider additional marketing strategies the Town could pursue.
5. Review, develop, and support additional strategies for long-term viability of agricultural and forest lands.
6. Recommend to the Selectboard the creation of an Economic Development Board.
7. Promote local business, services, and resources through the potential Economic Development Board or the Greater Burlington Industrial Corporation (GBIC) – the County's regional development corporation.
8. Research grant programs offered by county, region, or State and cooperate to promote economic development.

BACKGROUND

The Town of Underhill is a community in which the majority of its residents commute to work, primarily in the greater Burlington area and other Chittenden County communities. As a result, Underhill, in addition to neighboring towns like Westford and Bolton, are considered bedroom communities for the greater Burlington area, providing housing to the region's workforce. While the Town's economic health was thought to be closely linked to the economic health of our region and the State, that observation has not held true in recent years, as the Town has not experienced an increase of commercial activity in the same manner as other towns within the county, such as Essex and South Burlington. In 2016, the Underhill Country Store, a valued resource, closed and was subsequently converted to a three dwelling, multi-family structure. With the closing of the Underhill Country Store, Underhill residents are even more reliant on neighboring communities, especially Jericho's Riverside area, in which the new Jericho Market was constructed, to obtain everyday essentials.

...Underhill continues to take steps towards promoting more traditional economic opportunities within Town.

To preserve the rural character of the Town, Underhill needs to ensure opportunities for sustainable and economic growth. Underhill's commercial base is small compared to that of other communities in Chittenden County. However, a diverse mix of home businesses are scattered throughout Town, ranging from agricultural businesses to home offices/services and motor vehicle-related services.

While home-based businesses are essential to providing services to residents, thereby preventing long commutes to neighboring Towns, Underhill continues to take steps towards promoting more traditional economic opportunities within Town. In 2017, Underhill Center obtained village designation status from the Vermont Department of Housing and Community Development, which provides financial incentives and opportunities to those who pursue commercial establishments within the designation areas. Subsequently, in 2018, Underhill residents voted and

approved a new zoning district – the Underhill Center Village District – which provided relief from some of the more restrictive dimensional standards of the Water Conservation District, as well as providing more land use opportunities within the district. The creation of the Underhill Center Village District closely aligns with the intent of the Underhill Village Flats Districts, which is to provide economic opportunities and denser development (see Land Use Chapter for more information).

While steps are being made towards encouraging increased commercial activity in the two Centers, the Town recognizes the continued importance and value of home-based businesses. These home-based businesses not only provide services to local residents, but also contribute to local employment opportunities and assist with maintaining the rural character of the Town, as many home businesses have no visible or physical impact on adjacent properties and little to no traffic impact. Currently, home-based businesses are allowed in all zoning districts, and, depending on the nature of the business, either require administrative review or Development Review Board review. Keeping the goal of preserving the rural character in mind, the Town will continue to encourage small-scale commercial development in the village centers, and at the same time continue to promote home-based employment opportunities.

EMPLOYMENT

The annual unemployment rate for the Town of Underhill was 1.8% in 2017 – lower than both Chittenden County's rate of 2.3%, and the State's rate of 3.0%.³⁹ With respect to commuting-related data, as provided by the United States Census Bureau, 189 individuals commute to Underhill for employment, while 1,384 individuals

³⁹ Vermont Department of Labor: <https://www.housingdata.org/profile/income-employment/labor-force>

commute to neighboring towns for employment.⁴⁰ Additionally, 27 individuals are identified as living and working in the Town. Table X.1 provides an overview of Underhill's median household income as it relates to Chittenden County.

Table 8.1 – Financial Characteristics of Underhill, Years (2018)

	Underhill		Chittenden County		Vermont	
	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
Median Household Income	\$98,409	± \$5,810	\$69,896	± \$2,132	\$60,076	± \$656
Per Capita Income	\$45,329	± \$3,299	\$37,507	± \$948	\$33,238	± \$337

Source: U.S. Census Bureau: American Community Survey 5-year estimates (Table B25119) via housingdata.org; Mean Per Capita Income, 2018 ACS 5-year estimates Table S19021

ECONOMIC OPPORTUNITY & PLANNING

As commercial activity has continued to decrease over the past few years, increased interest has emerged in supporting small-scale business such as restaurants, cafes, lodging, etc.⁴¹ As stated above, traditional commercial activity has decreased over the years; however, the economic opportunities provided by the Town's natural landscape of mountains and hills have remained. The recreational and tourism related activities common in or around town include snowshoeing, skiing, road and mountain biking, walking, hiking, running, and wildlife watching. These activities present an opportunity to provide additional income to the Town and its residents.

In an effort to promote the aforementioned recreational and tourism related activities, one essential economic development strategy that the Town has failed to pursue is informational outreach/advertising-related campaigns. For example, were Underhill to pursue more informational outreach strategies that promote these recreational opportunities (e.g. hiking, biking, hunting), the Town could then benefit from increased tourism and traffic throughout Town. Moreover, the Town could also pursue, or encourage, the promotion of Underhill products (e.g. maple syrup) as a means to encourage economic opportunities. Coupled together, these types of campaigns could directly and indirectly increase commercial activity in Town by creating demand for services to serve the additional recreational users and tourists.

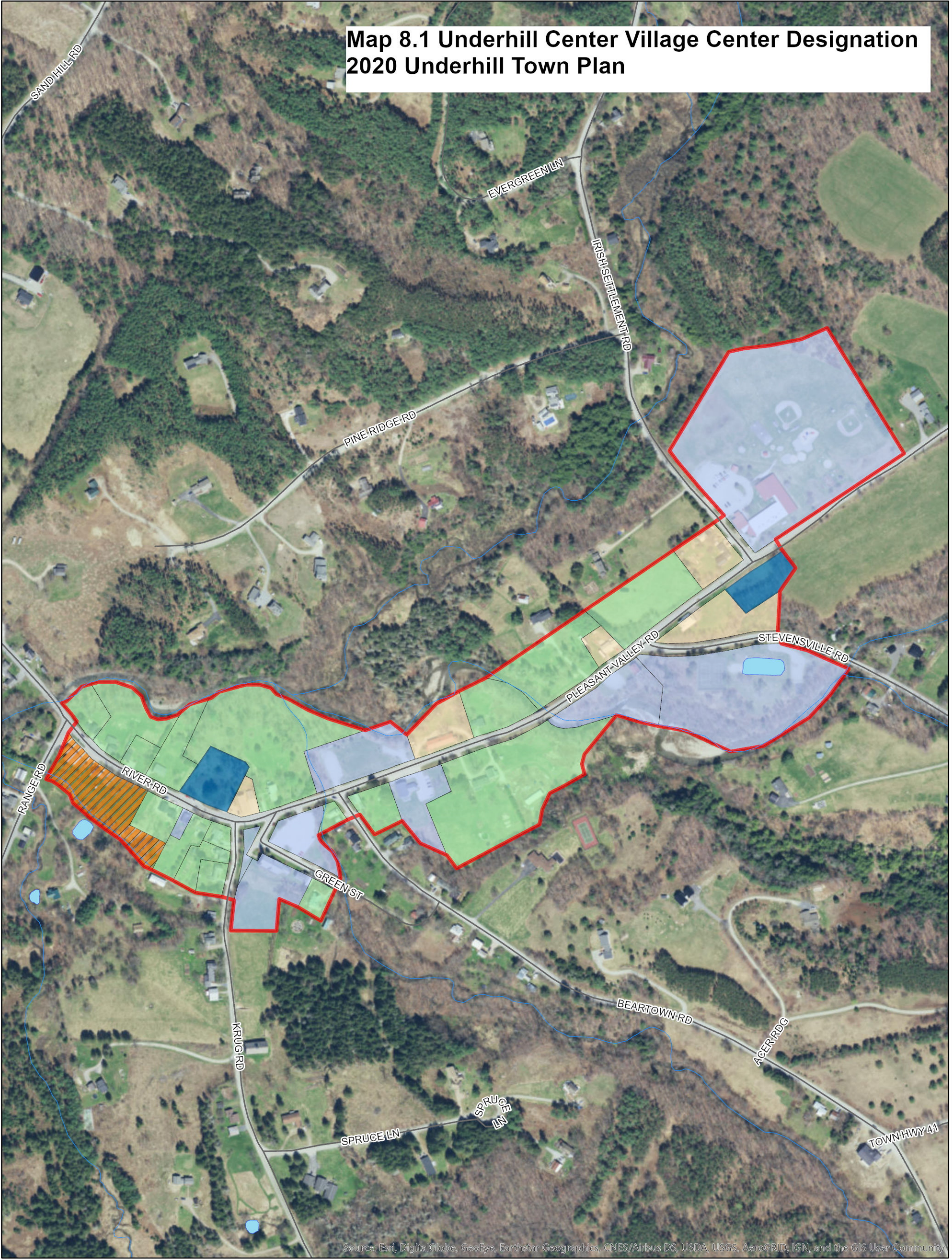
In addition to informational outreach strategies, the Town should continually explore potential strategies that will encourage economic opportunities within the village centers, as well as whether other areas of Town are suitable for commercial activity. Currently, commercial activities are largely permitted conditionally, thus requiring approval by the Development Review Board, which is oftentimes seen as a hurdle to establishing a new business. The Town should explore strategies that would eliminate administrative hurdles, which could help encourage the establishment of new commercial activity.

Another method to help encourage commercial activity that has been considered in the past, but never seriously pursued, is tax-related incentives. The Town's small budget coupled with expensive infrastructure-related projects oftentimes excludes the exploration or deployment of tax-related incentives; however, this strategy could very well be a catalyst in reviving commercial activity in the Town and boosting the commercial tax base. While the feasibility of implementing tax-incentives seems unrealistic due to budget constraints, the Town should research tax-related incentives other communities similar to Underhill have implemented and evaluate the viability of deploying those tax-related strategies.

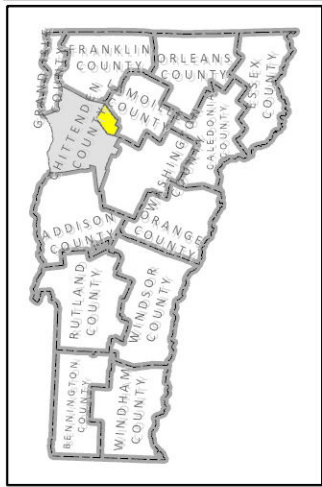
⁴⁰ United States Census Bureau (Based on 2017 Data)

⁴¹ Town Plan Survey

Map 8.1 Underhill Center Village Center Designation 2020 Underhill Town Plan



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



- Use**
- Civiv/Public
 - Mixed-Use
 - Multi-Family

- Legend**
- Single-Family
 - Vacant
 - Designated Village Center

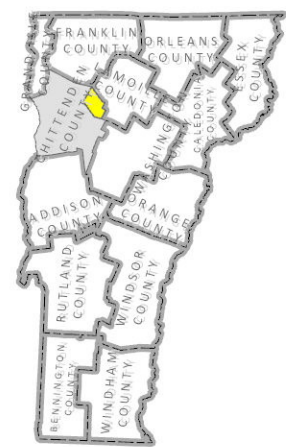
0 200 400 Feet



Source: Road Centerline - VTrans, 2017; Surface Water - VHD, 2008 (VCGI); Use-Town of Underhill; Map created by P. Brangan using ArcGIS. All data is in State Plane Coordinate System, NAD 1983.

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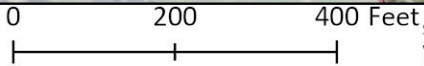
Map 8.2 Underhill Flats Village Center Designation 2020 Underhill Town Plan



- Use
- Civic/Public
 - Commercial
 - Mixed-Use

Legend

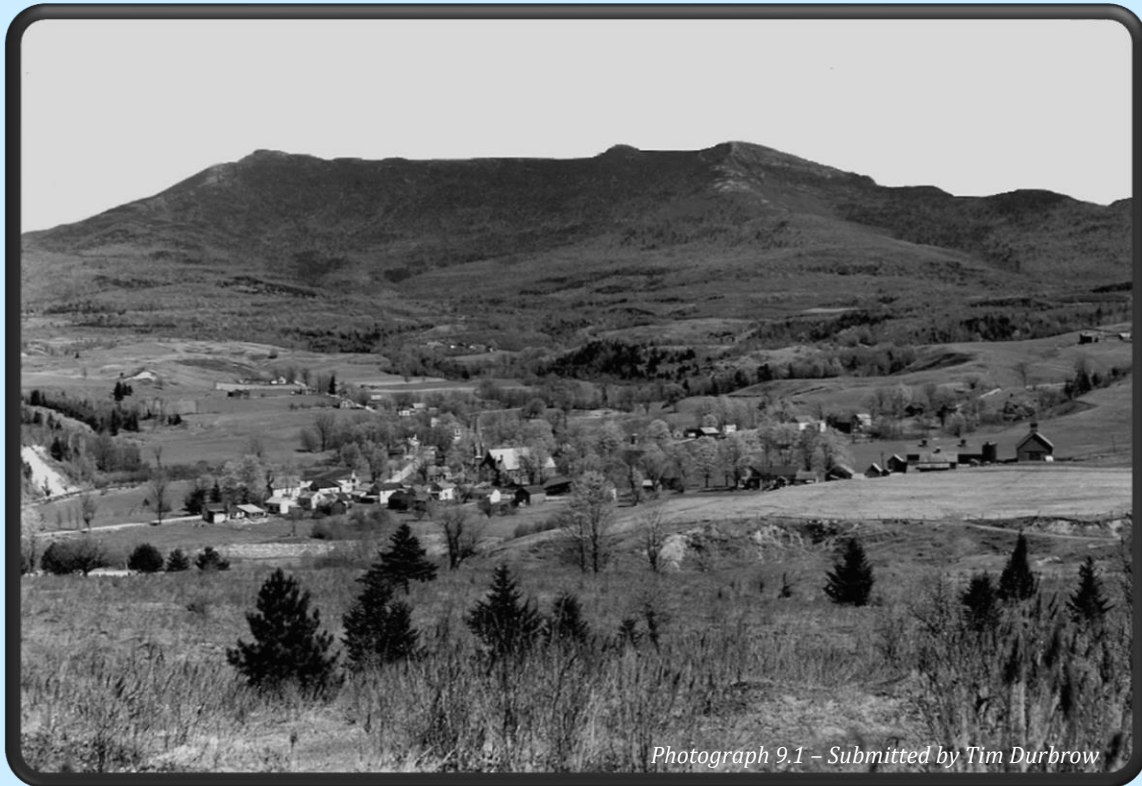
- Multi-Family
- Residential
- Vacant
- Designated Village Center



Source: Road Centerline - VTrans, 2017; Surface Water - VHD, 2008 (VCGI); Use-Town of Underhill; Map created by P. Brangan using ArcGIS. All data is in State Plane Coordinate System, NAD 1983.

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Chapter 9



Photograph 9.1 – Submitted by Tim Durbrow

Historic & Cultural Resources

GOAL 1: Protect, maintain, enhance and promote historic sites, structures and artifacts including geographic features important to the history and cultural heritage of Underhill.

GOAL 2: Create more awareness of Underhill’s cultural and historic resources.

POLICY 1: Encourage the conservation and protection of Underhill’s historic resources, such as: historic buildings and structures, geologic anomalies & glacial erratics, stone walls and bridges, French drains, blind ditches, dugways, stone foundations, cemeteries, private grave yards, survey corner markers, and Native American Elements (e.g. graves, cairns, glyphs and direction trees); as well as to encourage the compatibility of building designs within the historic districts and Village Centers.

Strategies:

1. Update the inventory of historic structures in the Town of Underhill.
2. Create a volunteer program that would contribute to the preservation of historic resources.
3. Revise the adaptive reuse regulations to encourage the repurposing or rehabilitation of historic resources.
4. Identify funding sources to encourage the preservation of historic structures.
5. Explore potential amendments to the *Unified Land Use & Development Regulations* that will promote and/or facilitate the protection and/or rehabilitation of historic structures and Historic Districts.

POLICY 2: Conserve and protect Underhill’s cultural resources, including its rural character, scenic vistas, outdoor recreation, and cultural events.

Strategies:

1. Promote the voluntary identification and preservation of cultural resources.
2. Identify important scenic resources.
3. Identify funding resources to maintain, protect, preserve and/or acquire scenic resources.
4. Identify funding resources to support cultural events like the Harvest Market.

POLICY 3: Promote awareness of Underhill’s historic and cultural resources.

Strategies:

1. Devise a strategy to promulgate Underhill’s history to residents.
2. For other strategies that are related to Historic and Cultural Resources see various strategies in the *Recreation & Economic Development Chapters*.

BACKGROUND

The history of Underhill shines bright in its many historic buildings and its vast forest. The Town of Underhill provides cultural opportunities to not only its own residents, but also to residents of the State and County. The preservation of these resources is important, as it helps promote a sense of identity, while at the same time continuing to make Underhill a desirable place to live and visit.

CULTURAL RESOURCES

Maintaining Underhill's rural character has been vital in maintaining its cultural resources, as many of the cultural resources are intertwined with these Town's vast forest and natural resources. Underhill has long been a destination for Town residents, Vermont residents, and even out-of-state residents, to hunt, fish, and recreate (e.g. hiking, cross-country skiing, snowshoeing, biking, etc.). As Chittenden County has become more and more populated, the Town of Underhill has been able to retain its rural character and natural resources, thereby maintaining these valuable cultural assets. While Chittenden County continues to grow, and thereby indirectly increasing development pressure on the Town, maintaining our rural character and natural resources is increasingly vital in ensuring that the Town's familiar and important cultural resources remain.

HISTORIC RESOURCES

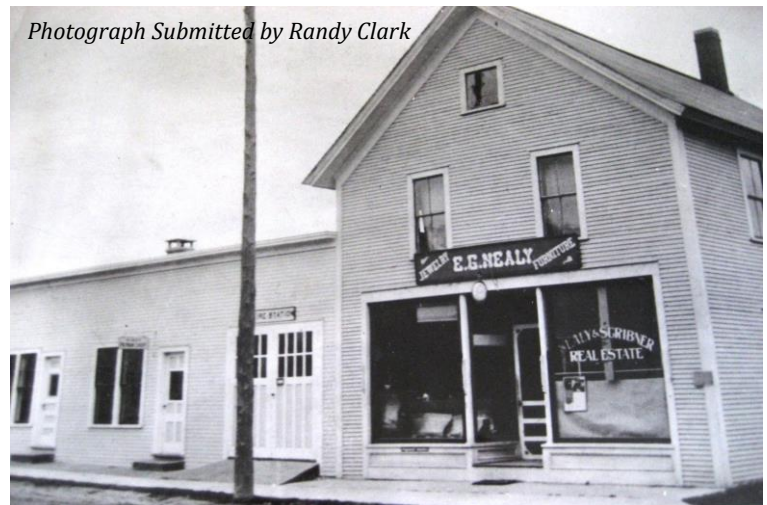
Underhill's long and rich history is expressed in its built environment. The preservation of this heritage is an important part of keeping Underhill a desirable place to live, as well as adding to its desirability as a tourist destination and contributing to its economic base. In the 1970s, a statewide survey was conducted and resulted in the mapping of historically significant buildings. The results of this survey as they relate to Underhill can be found in Map 9.1.

Underhill has three properties in the National Register of Historic Places: the Proctor Maple Research Farm, the Underhill State Park, and the District #5 Schoolhouse, located at the intersection of Pleasant Valley Road and Stevensville Road. In late 2019, the Underhill Historical Society, a

501(C)(3) that serves as the Town's central source of historical information, completed the restoration of the Schoolhouse. Prior to the start of its renovations in the early 2010s, the Schoolhouse was in a state of disrepair and still exhibited damage from a fire that occurred in the 1950s. However, after obtaining a grant, as well as additional funding from the Town's general budget, the Schoolhouse's restoration has been completed and the Underhill Historical Society has obtained National Register status for it as a historic building. With the renovations complete, "Old Schoolhouse #5" will serve not only as a historically significant resource, but also as a cultural resource, as the schoolhouse will be utilized as a public gathering place for small events.

Due to the Town's limited resources, renovating other historically significant buildings is challenging. In addition, many of these historically significant buildings are owned by private landowners, potentially creating obstacles to renovation and/or restoration of those buildings. One mechanism in encouraging the conservation of historic buildings in Underhill Center and Underhill Flats Village is through the Village Center Designation program, which provides tax incentives for maintaining these buildings.

While the Village Center Designation program is a valuable resource, it is geographically limited. Other historic features, including houses, agricultural buildings, stone walls, etc., can be found throughout the Town's rural areas. They comprise Underhill's rural landscape, and their preservation and reuse contributes to maintaining the Town's rural character. In order to encourage the protection of historically significant structures through the entirety of



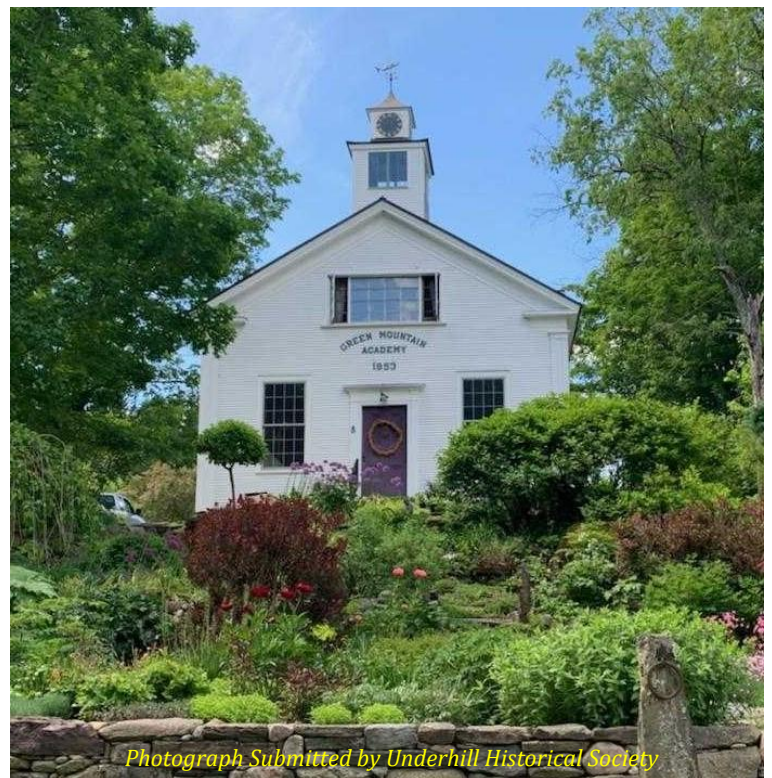
Picture 9.2 – Underhill Fire Station (1913-1936)

the Town, the Planning Commission, in coordination with the Underhill Historical Society, desires to first identify these buildings. Once identified, a voluntary program should be developed that will gauge public interest for the promotion, protection, and/or preservation of these structures.

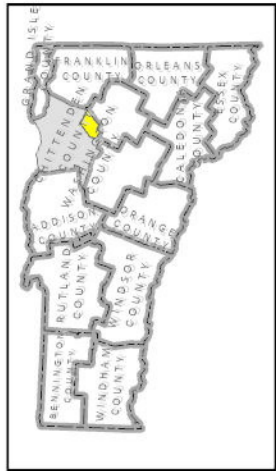
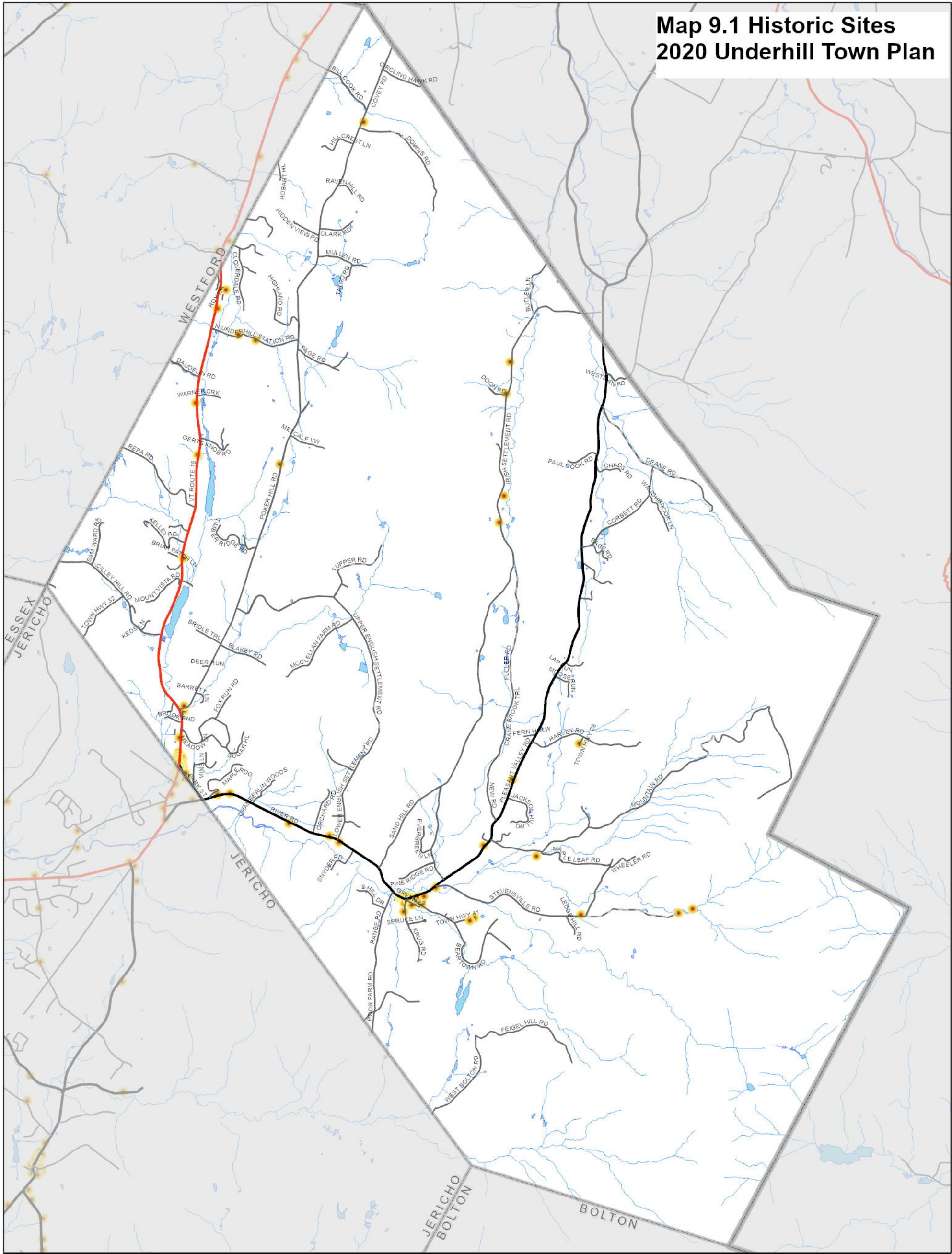
Other historic resources that are valued by the community are blind ditches, cairns, cemeteries, French drains (also known as curtain drains), foundations, Native American elements, stonewalls & bridges, old road and railroad track beds, as well as survey corners. Many of these resources are mentioned in stories, books, newspaper articles, photos and videos, and can be found scattered throughout Underhill's abundant forest. Additionally, resources such as notable trees, posts, and rocks can be referenced in deeds, adding additional value. While evidence of Native American settlements has largely been erased by time and development, verified sites that are known or subsequently discovered can add spiritual value to residents as they connect us to the past. The Town encourages the identification, conservation and protection of these features.

HISTORIC VILLAGES

The two most prominent areas of Underhill that serve as centers of commerce, culture, and community are the Underhill Flats Village and the Underhill Center Village. In coordination with the Town of Jericho, the Riverside/Underhill Village Center was designated as a "Village Center" in 2010 by the Department of Housing and Community Development. In 2017, Underhill Center received its "Village Center" designation. The Village Center program will be essential in revitalizing both the Underhill Flats Center and Underhill Center, as the program recognizes and encourages efforts to revitalize and preserve Vermont's traditional historic villages. In promoting those efforts, the designation program provides financial incentives for commercial rehabilitation projects, as well as giving the Town a higher priority when being considered for State grants and other resources. The program's goal of revitalizing the Town village centers aligns with Underhill's goals and efforts of preserving a sense of place and providing a high quality of life for residents, while at the same time focusing on denser and more impactful development in the Town's centers and ensuring that future growth is centered in areas that have existing services and infrastructure.



Map 9.1 Historic Sites
2020 Underhill Town Plan



Legend

- Road Centerline
- State Highway
- Town Highway Class 2
- Town Highway Class 3
- Town Highway Class 4
- Historic Site
- Stream Centerline
- Water Body

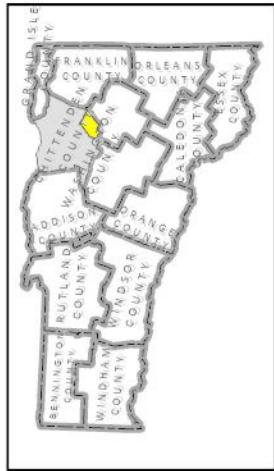
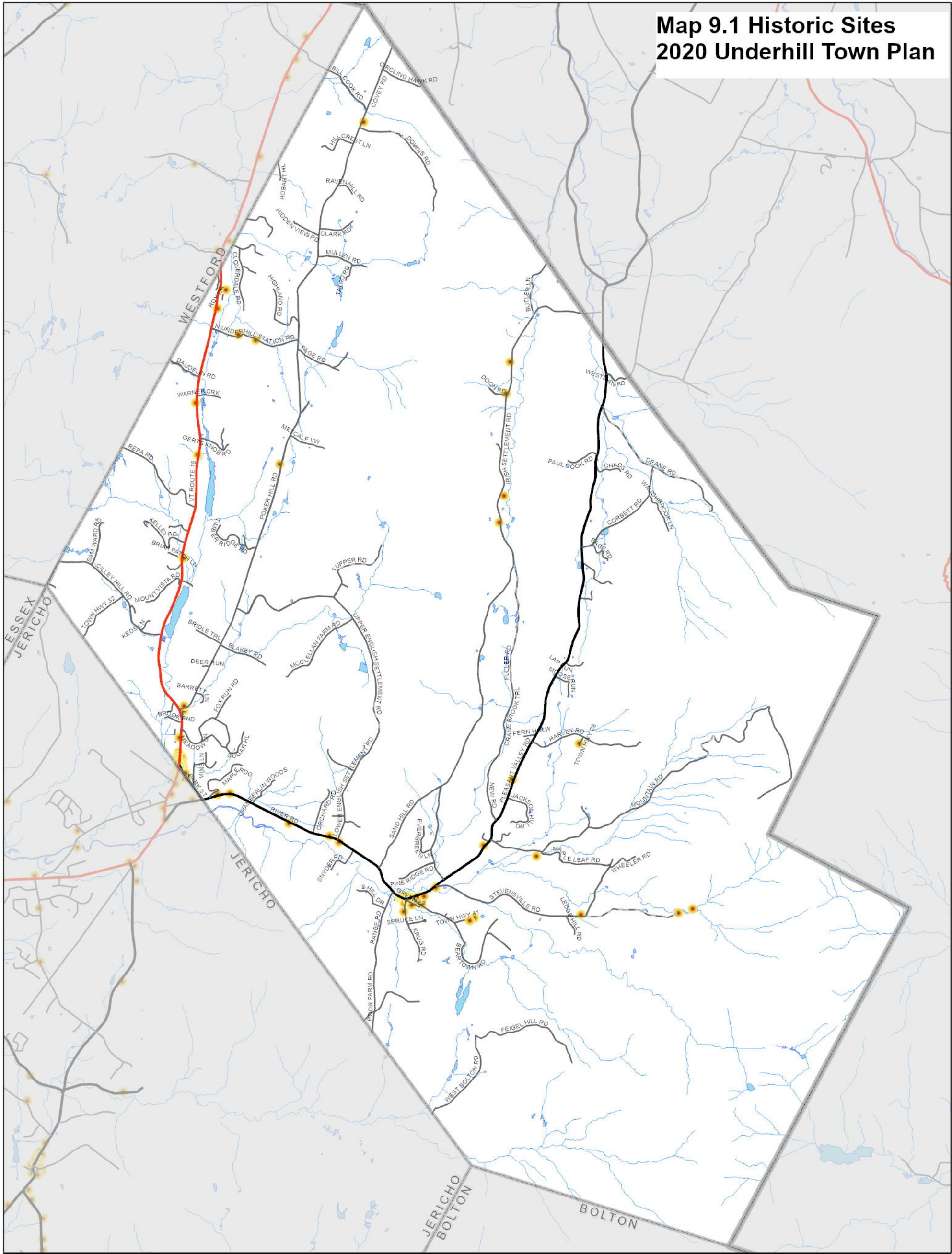
0 0.5 1 Mile



Source: Road Centerline - E911, 2020; Surface Water - VHD, Transit, GMT; Map created by M. Needle using ArcGIS Pro. All data is in State Plane Coordinate System, NAD 1983.

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Map 9.1 Historic Sites
2020 Underhill Town Plan



Legend

- Road Centerline
 - State Highway
 - Town Highway Class 2
 - Town Highway Class 3
 - Town Highway Class 4
- Historic Site
- Stream Centerline
- Water Body

0 0.5 1 Mile



Source: Road Centerline - E911, 2020; Surface Water - VHD, Transit, GMT; Map created by M. Needle using ArcGIS Pro. All data is in State Plane Coordinate System, NAD 1983.

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Chaper 10

Photograph 10.1 – Submitted by Tim Durbrow



Recreation

- GOAL 1:** Build community through events held on Underhill owned land and parks.
- GOAL 2:** Continue and/or enhance the maintenance of Underhill recreation facilities/resources.
- GOAL 3:** Expand and improve access to trails in Underhill.
- GOAL 4:** Create new recreational opportunities.
-

POLICY 1: Encourage community involvement at organized events at Town Parks.

Strategies:

1. Host summer food truck nights in Moore Park with live music.
 2. Organize sledding events at Casey's Hill.
 3. Install lights for, and offer hot chocolate at, the ice-skating rink in Moore Park during the winter months.
 4. Develop additional event ideas to offer to Underhill residents.
-

POLICY 2: Provide well maintained recreational facilities/resource (e.g. the Town's recreation area, Moore Park, Casey's Hill, and the Crane Brook Conservation Area).

Strategies:

1. Maintain the pond infrastructure, which includes the pond, picnic areas, tennis courts, and playground area.
 2. Brush hog Casey's Hill as needed.
 3. Maintain the ice-skating rink at Moore Park during the winter months.
 4. Develop safety tactics to improve the safety of recreational activities (e.g. pedestrian and bicycling) along the Town's roads.
-

POLICY 3: Support efforts to maintain existing trails and build new trails.

Strategies:

1. Maintain, improve and/or construct active transportation trails in accordance with environmental missions.
 2. Partner with local mountain bike clubs to improve mountain bike access.
 3. Maintain and improve the existing trail network in the Crane Brook Conservation District.
 4. Have the Development Review Board and the Recreation Committee coordinate in regards to potential trail easements.
 5. Collaborate with local conservation groups to conserve and manage open land for trails.
 6. Explore and support endeavors that would connect Underhill Flats with Underhill Center via trails and/or other multi-modal connectors.
-

POLICY 4: Support the community's recreational interests through strategic planning.

Strategies:

1. Conduct surveys to gauge community interest in recreation activities and resources.
2. Identify capital projects to include in the planning of capital projects & capital assets that would benefit the Town's recreational facilities/resources.
3. Identify new low-cost recreational opportunities to provide to Underhill residents.
4. Periodically review existing and proposed recreation opportunities.
5. Create a short-term, medium-term and long-term plan that implements potential recreational opportunities.

BACKGROUND

Recreation and open space are important components of a community. Underhill is fortunate to have some of the most iconic land and open space in the state of Vermont. The Town is home to the highest peak in Vermont, Mt. Mansfield, and contains part of the vast Mt. Mansfield State Forest and Underhill State Park. Furthermore, the headwaters of the Browns River is in Underhill, which provides a valuable resource to not only the Town itself, but regionally. Recreation, especially outdoor recreation has been a part of the fabric of Underhill for generations. In the past, trains from Boston and New York City brought tourists to Underhill to experience the Town's outdoor recreational opportunities such as skiing, hiking, etc. The active nature of the community is well established, as avid skiers, hikers, mountain bikers, sportsmen, and runners are a part of our active community. Additionally, the Underhill community has access to a vast network of public and private trails and recreational opportunities that highlight the natural beauty of our town.

In recent years, the Recreation Committee has played a significantly more active role in stewarding the Town's recreational activities. Prior to 2017, the Recreation Committee was comprised of two members that were only able to provide limited contributions due to the size of the board. However, interest expanded, and the Committee was finally able to fill all seven of its seats. With that expansion, the revitalized Committee has helped revolutionize the Town's recreational opportunities. With its new members, the Committee set out with a new purpose, striving to bring back some of the old, traditional characteristics of Underhill:

"In a world of ever lessening personal interactions, the . . . Committee looks to foster, develop and build neighborly relationships, interactions and comradery. The purpose of the . . . Committee is to preserve, strengthen and build on a long-standing history of community in Underhill."

With a new purpose, the Committee also revamped their vision and mission statements, which were guided by a 2018 survey they conducted. These vision and mission statements are incorporated into this Plan directly below since they reflect and parallel the community's vision and mission outlook as it relates to recreation:

Vision: to fully utilize Town owned natural resources, while simultaneously encouraging citizens of all ages and abilities to embrace these resources.

Mission: to create community in Underhill through events and recreational opportunities, while utilizing Town owned property, natural resources, and facilities.

In a world of ever lessening personal interactions, the . . . Committee looks to foster, develop and build neighborly relationships, interactions and comradery.

There are three dedicated recreational areas in Underhill: Underhill Center, which includes the Town Recreation Area on Stevensville Road and Moore Park; Casey's Hill at the intersection of Mountain Road and Pleasant Valley Road; and the Crane Brook Conservation area on New Road. The Underhill Town Recreation Area contains the Town pond, a small basketball court, a picnic area, playground equipment and tennis courts. In 2018, the town purchased an ice-skating rink, which is assembled during the winter months in Moore Park. With the purchase of the ice-skating rink, visitation to Moore Park has dramatically increased. Close to Underhill Center is Casey's Hill, which is used primarily for sledding in the winter months. In 2019, the Recreation Committee started working with the Underhill Conservation Commission to maintain, improve, and promote the trails in and around the Crane Brook Conservation area.



Over the past few years, the Recreation Committee has largely focused on maintenance and improvement of the Town pond and Casey's Hill. In 2018, the Committee did an informal survey of the town that was distributed on Front Porch Forum and the Town website to guide its future endeavors. The following themes emerged from the survey:

1. Events could be held at our Town recreational areas to increase utilization and provide opportunities for community gatherings.
2. There is more interest in trails of all kinds vs. other types of recreational infrastructure.
3. There is a lack of winter recreational options as well as a deficiency of options nears the Underhill Flats area.

As a result, the Town has adopted the idea of building community through use of the Town's parks as part of its core mission, and, in addition, providing more of a balance of winter and summer recreational activities.

BUILDING COMMUNITY

Community building events have been essential in meeting the goals of the Town, particularly the organization of food truck nights in Moore Park in Underhill Center. The food truck nights are no-cost events that utilize the Town's most central park. Generally, 3-5 food trucks are scheduled at each event, as well as a live band. Fees paid by the food trucks are put towards the band's fee. The first food truck night was held in the fall of 2018, and four events were scheduled in 2019. The events have been well received by the community and more events are anticipated in 2021 and in to the future. The Recreation Committee should continue to provide these types of events as a means to continue community building.

In addition to hosting events, there has been an increased emphasis on communicating Recreation Committee activities through the use of Front Porch Forum, Facebook, and signage. These advertising techniques have resulted in increased resident turnout, which will further assist the efforts of the Recreation Committee in coordinating more of these events. An indirect impact of the increased turnout to those events has been increased utilization of the Town's parks and other various recreational infrastructures in 2019. Going forward, the Town supports upgrades and improvements to the Town's website to better facilitate communication with the community.

WINTER RECREATION

Prior to the addition of the ice-skating rink at Moore Park, sledding at Casey's Hill was the biggest winter recreational opportunity. The new ice-skating rink provides a new venue for winter activity. The rink is removable and is constructed annually in Moore Park. The skating experience is anticipated to be greatly enhanced by both leveling the park (to reduce variations in ice thickness) and adding lighting to the rink. These projects are to be completed in the near future, as Selectboard approval has been granted for this work. Maintenance of the rink was entirely performed by volunteers in the 2018-2019 season. There was much community support for the rink and the ice was in good condition for most of the winter. The rink was also the site for two community events in 2019 in which lights and hot cocoa were provided for weekend evening skating. The Town aims to build on these events in future seasons and attempt to incorporate events at Casey's Hill.



TRAILS

The Recreation Committee has recently taken an interest in expanding the trail network in Underhill; however, neither the Recreation Committee nor the Town has the resources required to pursue this endeavor. The opportunity to have an active trail connecting Underhill Flats and Underhill Center is seen as immensely valuable; however, the means to undertake such a task is out of the scope of just one committee to pursue. The Town recognizes the value that this trail could provide to the community (as has been pointed out in numerous sections of this Plan). Therefore, the Town will need to continue to explore options to create such a trail, which likely

requires a collaborative effort with various boards, commissions, and committees, in addition to other stake holders such as private land owners. Ultimately, the Town supports construction of new recreation trails in a manner respectful of the community and landowners' property rights.

In the short term, efforts should be focused on the existing trail networks owned by the Town. A short trail was built in 2019 to connect the Town Recreation Area and the recently renovated Old Schoolhouse #5. The Recreation Committee and Conservation Commission anticipate collaborating with one another in 2020 to improve access to the existing trails in the Crane Brook Conservation area and make the area more available to residents.



TOWN RECREATION AREA CAPITAL IMPROVEMENTS



Another area for future enhancement of recreational opportunities would be suggesting recreation-related capital projects to be included in the planning of capital assets and capital projects. Many recreational-related infrastructure items in the Town recreation area are due for replacement or improvement due to aging. This includes the tennis courts, as well as the fencing around the pond and the tennis courts. The Recreation Committee is working toward proposing specific capital projects for the repair and improvement of the tennis courts, fences, and playground equipment in 2020, and hopes to begin working on a beautification plan for the Town recreation area as a whole. Improving the Town's recreational offerings, as well as its aesthetic appeal, will make the Town recreation area a more attractive gathering place for the community.

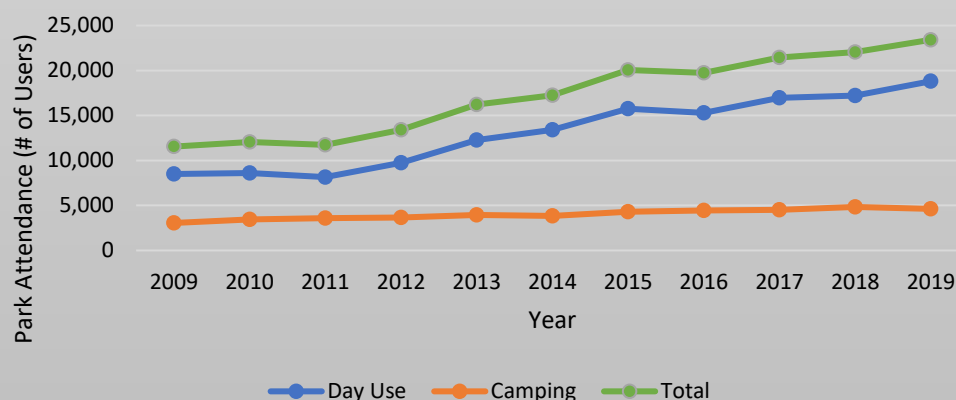
UNDERHILL FLATS AND NORTH UNDERHILL

Based on the results of the survey conducted by the Recreation Committee, the Town recognizes that all recreational options currently being explored preferentially benefit those who live in Underhill Center as opposed to Underhill Flats and North Underhill. The Committee is currently making efforts to explore options that will benefit those who live farther from Underhill Center. The aforementioned trail from Underhill Flats to Underhill Center could provide better access to existing recreation areas for those living in Underhill Flats and vice versa. The committee is also exploring opportunities to connect the pre-existing trail networks in these regions. The Recreation Committee aims to hold at least one food truck night in the Underhill Flats area in the near future; however, the Recreation Committee should strive to perform these events in Underhill Flats on a long-term basis as well.

UNDERHILL STATE PARK AND MT. MANSFIELD STATE FOREST

Underhill State Park and Mt. Mansfield State Forest are located in the eastern part of Town and provide an array of recreational opportunities to Town residents, State residents, and others either nationally or internationally. The park provides numerous miles of trails for hiking; eleven camp sites, six lean-to sites, two group camping sites and seven group lean-to sites; as well as areas for picnicking. The vast trail network connects with the Long Trail – a 273-mile continuous trail that spans the entire State of Vermont, from the Canadian border to the Massachusetts border. The park is officially open from Memorial Day Weekend in May to Columbus Day in October; however, utilization of the park continues into the offseason.

Chart 10.1 - Underhill State Park Attendance (2009-2019)



While Underhill State Park is primarily accessed from Mountain Road, providing access to the State Forest and the facilities outlined above; the State Forest can also be accessed from Stevensville Road, where there is an additional trail head connecting to the vast trail network. This trail network allows for winter activities such as snowshoeing and cross-country skiing. Since 2009, total attendance at Underhill State Park has doubled, as total attendance in 2009 was 11,544 visitors, while total attendance in 2019 was 23,417.

Table 10.1 – Underhill State Park Attendance (# of Users)

Year	Day Use Attendance	Camping Attendance	Total
2009	8,490	3,054	11,544
2010	8,606	3,450	12,056
2011	8,153	3,575	11,728
2012	9,275	3,665	13,393
2013	12,278	3,939	16,217
2014	13,407	3,837	17,244
2015	15,759	4,289	20,048
2016	15,295	4,444	19,739
2017	16,956	4,501	21,457
2018	17,226	4,834	22,060
2019	18,808	4,609	23,417
Total	144,703	44,197	188,904

Source: Vermont Department of Forests, Parks & Recreation

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Chapter 1 - Land Use

Actor Term

Policy 1: Encourage mixed-use buildings, rehabilitation projects and conversions of existing development in the village centers.

Strategies	1	Continue to encourage “smart growth principles.”	DRB, PZA	CT
	2	Provide information to village center landowners pertaining to the Village Center Designation Program administered by the Vermont Department of Housing & Community Development.	PZA	CT
	3	Investigate the feasibility of implementing and/or extending public & private water and wastewater treatment systems in the village centers.	PC, JUDW	MT
	4	Review and update, where appropriate, the allowed uses in the Underhill Flats Village Center and Underhill Center Village zoning districts.	PC	CT
	5	Continually review, and update where appropriate, the zoning regulations to make them more “user-friendly.”	PC	CT

Policy 2: Regulate development outside the village centers to respect the Town’s rural character, scenic attributes, natural resources, and agricultural, forest and outdoor recreational economies.

Strategies	1	Review the terms and conditions of the Town's land contracts.	SB	ST
	2	Examine whether the Town’s land contracts are an effective way to achieve Town goals.	PC, SB	ST
	3	Research and develop zoning related approaches that protect the rural and scenic character and maintain open space.	CC, PC	LT
	4	Explore possible options for the clustering of development	PC	MT
	5	Review and update, where appropriate, the allowed uses in each zoning district outside of the Town’s village centers.	PC	ST
	6	Continually review, and update where appropriate, the zoning regulations to make them more “user-friendly.”	PC	CT

Policy 3: Provide clarity and precision of zoning district boundaries to prevent issues resulting from uncertainties with the current zoning map.

Strategies	1	Re-examine the future land use map and amend where appropriate.	PC	ST
	2	Research the feasibility of adjusting zoning district boundaries to follow features, which include, but are not limited to, property boundary lines, roads or significant waterways.	PC	MT
	3	Apply for grants to assist in evaluating potential options that help resolve the existing zoning map issues.	PC	MT
	4	Seek public input on proposed amendments to the zoning map.	PC	ST

Chapter 2 - Natural Resources

Actor Term

Policy 1: Collaborate with property owners to help preserve working forestlands, agricultural lands, and significant natural resources, including open space.

Strategies	1	Conduct a natural resources inventory of the Town to identify significant interior forest blocks, significant farmland, and significant natural resources.	CC	MT
	2	Develop a natural resources map that incorporates the findings from the natural resources inventory.	PC, CC	MT
	3	Provide property owners with information about sustainable land management techniques, as well as sources for technical and financial assistance.	CC, PZA	CT
	4	Ensure proper access to forest and/or agricultural land.	DRB, CC	CT
	5	Consider adopting a “right-to-farm” provision within the Town’s land use regulations.	PC	ST
	6	Provide guidelines where possible that are consistent with State law and ensure logging does not create environmental instabilities (e.g. increased flooding, erosion, sedimentation, etc.).	DRB, PZA	LT
	7	Amend the <i>Land Use & Development Regulations</i> to address inconsistencies pertaining to the maximum height requirements.	PC	ST
	8	Collaborate with local conservation groups to conserve and manage open land.	CC	LT

Policy 2: Maintain and improve forest blocks and significant wildlife habitat and habitat connectors, and minimize forest fragmentation in order to promote the health, viability, and ecological function of forests, while collaborating with property owners.

	1	Evaluate State and regional recommendations pertaining to the locations of significant wildlife habitat.	CC	MT
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Strategies	2	Identify areas of habitat connectors, which includes, but is not limited to: greenways, riparian lands, and forested strips.	CC	MT
	3	Seek landowner support in identifying and preserving significant wildlife habitat and habitat connectors.	CC, PC	MT
	4	Educate landowners about low impact development in significant wildlife habitat.	CC, PC	CT
	5	Purchase and/or acquire easements to protect and encourage contiguous significant wildlife habitat.	SB	CT
	6	Promote the utilization of shared driveways and shared curb cuts for development and subdivision projects.	SB, DRB, PZA, RF	CT
	7	When re-examining the zoning districts in accordance with strategies under Chapter 1 of this plan, consider the minimum lot sizes and their impact to forest fragmentation.	PC, CC	ST
	8	All development, including renewable energy generation and associated infrastructure, should minimize forest fragmentation.	DRB, PZA	CT
Policy 3: Protect significant ridgelines and steep slopes from improper development.				
Strategies	1	Continue to prohibit development above 1500 feet in elevation (fie).	DRB, PZA	CT
	2	Identify significant ridgelines by considering scenic value, significant wildlife habitat, water quality and accessibility.	CC	ST
	3	Classify steep slopes by considering degrees of steepness, soil types and accessibility.	CC, PC	MT
	4	Define the type and amount of proper development, if any, to be allowed on significant ridgelines and steep slopes after classification.	PC	ST
	5	Where appropriate, review and update the steep slope regulations.	PC	ST
	6	Develop design guidelines for landowners to consider in connection with construction on steep slopes.	PC	ST
Policy 4: Support the conservation of rare, threatened and endangered species.				
Strategies	1	Identify the location of rare, threatened and endangered species.	CC	MT
	2	Ensure continued compliance with Vermont law with respect to rare, threatened and endangered species.	CC	CT
	3	Educate residents about rare, threatened and endangered species through outreach programs held annually.	CC	CT
	4	Prohibit development, including renewable energy generation and associated infrastructure, on areas with identified endangered species.	DRB, PZA	CT
Policy 5: Prevent the spread of invasive species				
Strategies	1	Identify priority non-native invasive species (plant and animal) and prioritize areas for monitoring and management.	CC	ST
	2	Educate residents, visitors and Town personnel regarding the identification, threats, and control of invasive species.	CC	CT
	3	Cooperate with private, local, State, and federal groups to address the threat of invasive species.	SB, CC	CT
	4	Develop a Town policy regarding the encounter, remediation, control, management, and removal of invasive species.	CC, SB	ST
	5	Where feasible, control the spread of existing invasive species in coordination with Town-initiated work projects.	CC, RF	CT
Policy 6: Ensure the protection of wetlands.				
Strategies	1	Maintain Class I designated wetlands in their natural condition; ensure that permitted alterations in Class II and Class III wetlands do not significantly diminish their functional and ecological integrity, or aesthetic values; and comment on applications submitted to the Vermont Wetlands Offices as necessary to ensure the above.	DRB, CC, ANR	CT
	2	Develop a Town natural resources map that accurately depicts, to the best extent possible, wetlands in Underhill.	PC, CC	MT
	3	Identify priority wetlands for restoration, mitigation and maintenance.	CC	LT
	4	Educate landowners about the value, importance and necessity of wetlands and vernal pools.	CC	CT
	5	Offer landowners expertise and resources in connection with the management, restoration, maintenance, and creation of wetlands and vernal pools.	PZA, DRB, CC	CT
	6	Purchase or acquire easements to protect vulnerable wetlands.	SB	CT
	7	Seek technical and financial support from State and federal agencies to protect wetlands.	CC, PC, SB	LT
Policy 7: Identify locations of sand, gravel, and stone in Underhill that might be extracted for Town use.				

Strategies	1	Evaluate quantity, quality, and feasibility of extraction with landowner input.	SB, RF, CC	LT
	2	Review and update the Town's zoning regulations as they relate to the extraction of sand, gravel and stone to consider environmental impact.	PC	ST
Policy 8: Understand and minimize air pollution throughout Town.				
Strategies	1	Identify areas in Town, if any, where local sources may cause significant air pollution, and if so, how many days per year on average.	CC	MT
	2	Consider methods for reducing significant local sources of air pollution, if any are identified.	CC, EC	MT
	3	Consider proposing regulations with respect to outdoor wood burning stoves.	SB, PC	ST
	4	Educate Town residents about cleaner burning (wood) stoves and encourage the removal of old stoves through swap programs or programs related to other, similar heating appliances.	EC	ST
Policy 9: Plan for and mitigate flooding damage to public infrastructure, private property, and natural areas.				
Strategies	1	Identify flooding threats and develop a process to mitigate harmful effects.	PC, CC	MT
	2	Periodically update the Town's All Hazard's Mitigation Plan, which pertains to the inventory of existing structures within mapped floodplains.	SB, PC, CC	CT
	3	Keep current Flood Hazard Area Regulations and consider whether or not they need to be strengthened.	PC	CT
	4	Develop a River Corridor Management Plan to help regulate development in floodplains and lands adjacent to streams.	PC	ST
	5	In accordance with 20 V.S.A. § 45, consider adopting river corridor protections required by the Emergency Relief Assistance Fund (ERAF) to increase Underhill's State funded support to 17.5% of recover cost in disaster declarations.	PC	CT
	6	Require native plant riparian buffers and maintain setbacks for erosion control along rivers, streams, and ponds to allow natural channel modification.	PC, CC	CT
	7	Adhere to the Municipal Roads Program and permitting requirements and continue to study the contribution of Town roads, bridges, and culverts to stormwater runoff, their adequacy to mitigate runoff, and associated damage.	DRB, SB	CT
	8	Ensure that all new roads, road improvements, and driveways are properly constructed to minimize erosion and scouring; road improvements should follow the current Town Road and Bridge Standards as adopted by the Selectboard.	PZA, RF, DRB, SB	CT
	9	Assure that all new construction employs effective erosion control measures as required in the associated permit and distributed guidelines.	PZA, RF, DRB, SB	CT
	10	Update Town regulations as techniques and technologies for stormwater control improve and ensure training for Town Employees.	PC	LT
	11	Review the All Hazard Mitigation Plans on a regular basis and follow-up on identified strategies for emergency preparedness and coordinated response planning efforts.	CCRPC, EMD, SB	CT
	12	Educate landowners about developmental impacts to brooks, streams, and rivers (e.g. illegal construction of bridges).	CC, ANR	CT
Policy 10: Protect surface and ground water resources for water quality, flood resistance, and natural resource resiliency.				
Strategies	1	Review the Land Use Regulations as they relate to surface water setbacks and amend if necessary.	PC	ST
	2	Ensure the Town Natural Resource map accurately depicts significant surface waters in Underhill.	CC, PC	MT
	3	Purchase or acquire easements to protect vulnerable surface waters.	SB	CT
	4	Seek technical and financial support from State and federal agencies to protect surface waters.	CC, PC	CT
	5	Explore how best to provide well-yield data to the Development Review Board.	PC, CC, PZA	ST
	6	Encourage water conservation through education.	CC	CT
	7	Develop and/or distribute guidelines as they relate to the conservation of water.	CC, PZA, DRB	ST

8 Develop a database of wells and wastewater systems.		PZA	ST
Chapter 3 - Energy			
		Actor	Term
Policy 1: Promote energy efficiency and energy conservation practices.			
Strategies	1	Improve the energy efficiency of Town building(s) by 9% by the end of this Plan (2029) .	SB, TA LT
	2	Seek grant funding to support energy efficiency upgrades for Town-owned buildings.	EC, SB CT
	3	Continue to educate residents and businesses about energy efficiency and conservation options that reduce their energy consumption, especially in the areas of thermal and household appliance energy expenditures, through outreach programs.	EC, CC CT
	4	Improve access to energy information, especially with regard to low cost, energy-saving ideas and incentives, by providing that information on the Town's website.	EC, CC ST
	5	Research the feasibility of implementing a home energy reduction challenge for residents and/or businesses.	PZA, EC, PC LT
	6	Promote and support improvements to Vermont Energy Dashboard to reflect actual local data.	EC, CC CT
	7	Investigate the Vermont Climate Pledge Coalition.	EC, PC, PZA ST
	8	Continue to promote the use of the residential building energy standards (RBES) and commercial building energy standards (CBES) by distributing code information to permit applicants	DRB, PZA CT
Policy 2: Promote and encourage the development of renewable, low-carbon energy sources in Underhill.			
Strategies	1	Create and maintain a data tracking program that will enable the Town to monitor public and private energy production and energy consumption, and to help confirm if the Town is meeting the interim renewable energy production goal set forth in Table 3.17.	EC MT
	3	Consider amending the zoning regulations, where appropriate, to enable energy production siting or energy distribution for renewable sources, which should include small-scale wind generation, specifically a small distributed wind energy system consisting of a single turbine producing up to 100 kW.	PC ST
	4	Adopt a visual screening ordinance for commercial ground-mounted solar generation facilities that exceed 15kW AC in accordance with 30 V.S.A. § 248(b)(B).	PC ST
	5	Identify and encourage the development of specific locations, such as gravel pits and other previously impacted areas, as preferred sites for the siting of renewable energy generation facilities, such as solar arrays	EC, CC, PC ST
	7	Continue to identify locations for solar power, as well as identifying other renewable energy options, especially for Town buildings as a Lead By Example effort.	SB, CC, EC CT
	8	Identify landowners interested in siting residential solar arrays on their property through outreach programs.	EC, CC CT
	9	Provide landowners interested in installing commercial-scale solar power on open land with information on mitigating impacts to pollinators.	EC, CC CT
	10	Identify opportunities to facilitate the group purchasing of renewable energy production equipment or installation services (i.e. "community installations") to lower individual costs and encourage development of renewable energy production sources.	EC MT
	11	Ensure that ground-mounted solar larger than 15 kW AC and wind turbines are located outside of the Underhill Flats Village Center and Underhill Center Village zoning districts.	PZA, DRB, EC, CC CT
	12	Locate small distributed wind energy systems (small-scale wind generation) consisting of a single turbine producing up to 100 kW in areas with wind power generation potential such as the prime and base wind potential areas shown on Map 3.1 & Map 3.2.	DRB, PZA, SB CT
	13	Renewable energy generation facilities and associated infrastructure must be located to avoid field verified State & local known constraints, as well as minimize impact to State & local possible constraints (see Table 3.1).	DRB, PZA, SB CT
Policy 3: Promote practices that reduce the use of public and private fossil fuel-burning vehicles.			
	1	Reduce Town equipment fuel usage by 9%.	SB, RF LT
	2	Explore opportunities that would allow Underhill to utilize local road material resources to reduce the miles driven to transport such materials (e.g. extracting gravel from a site in Town).	SB, EC, CC, RF ST

Strategies	4	Identify opportunities to replace fossil fuel-burning Town vehicles with vehicles powered by electricity or, in the case of heavy-duty vehicles, by bio-diesel.	SB, EC, RF	CT
	5	Continue to support regional bus services as a means to reduce transportation GHG emissions.	SB	CT
	6	Identify funding opportunities to support the purchase of Town electric or biodiesel vehicles.	TA	CT
	7	Collaborate with adjacent towns to improve transportation options for movement between town population centers, including through Chittenden Area Transportation Management Association (CATMA).	TTTC, SB	CT
	8	Identify and upgrade local roadways to include bike lanes, especially between Underhill Center and Underhill Flats.	SB, TA, RF	CT
Policy 4: Encourage use of all electric (100%) and hybrid vehicles.				
Strategies	1	Identify and implement locations, as well as funding opportunities, for electric vehicle charging stations to encourage the use of electric or hybrid vehicles.	EC, SB	ST
	2	Provide information about the costs and benefits of electric vehicles to residents (e.g., public presentations/forums, Front Porch Forum, Mountain Gazette, Town Website, etc.).	EC, CC	CT
	3	Review the Town's zoning regulations and modify as appropriate to support the inclusion of EV charging capacity within the development review process.	PC	ST
Policy 5: Reduce GHG emissions.				
Strategies	1	Work with the Regional Planning Commission to understand the status and trends of GHG emissions and reductions.	PZA, PC, EC, CC	MT
	2	Continue to educate residents about GHG and targeted reductions through outreach programs.	EC, CC	CT
	3	Educate residents about the emissions associated with brush pile and yard waste burning, and encourage the composing of that matter, as well as other organic matter.	CC, SB	ST
	4	Educate residents and businesses about the ability to reduce fossil fuel use for heating by partnering with utilities and energy vendors to promote technologies such as advanced wood heating systems, cold climate heat pumps, and geothermal systems.	EC, CC	CT
Policy 6: Encourage forest land conservation and management to increase natural carbon uptake and storage (carbon sinks).				
Strategies	1	Increase outreach to landowners on the role of forests in reducing GHG and carbon storage.	EC, CC, PC	CT
	2	Review and revise (as appropriate) open space contracts to promote the conservation of valuable forests for GHG reduction and carbon storage.	SB, EC, CC, PC	MT
	3	Educate residents regarding the negative effects of harvesting trees for the production of large-scale biomass fuel for electricity.	EC, CC, NRIC	ST

Chapter 4 - Transportation

Actor Term

Policy 1: Adhere to, and revise, where appropriate, the Town's Road, Driveway & Trail Ordinance with respect to				
Strategies	1	Review and consider VTrans Road and Bridges standards and adopt, where appropriate, Standards for Town with respect to roadway construction and maintenance.	SB, RF	CT
	2	Update the Town Road, Driveway & Trail Ordinance regulating private road and driveway construction, while taking into consideration new construction techniques and technologies.	RF, SB, DRB, PZA	CT
Policy 2: Ensure that public and private roadway (including private driveways) construction and maintenance				
Strategies	1	Identify new or continued roadway and driveway safety issues and seek to implement feasible remedial measures.	RF, PZA	ST
	2	Maintain public roadways and rights-of-ways free of litter and debris.	RF, CC	CT
	3	Revise the Town's Road, Driveway & Trail Ordinance where necessary to ensure safe access by emergency vehicle and residents.	PZA, RF, SB, DRB, UJFD, PC	ST
	4	Strongly encourage the Town's road crew to attend workshops regarding roadside maintenance and invasive species.	RF, SB	CT
	5	Develop guidelines for roadside aesthetics and invasive species.	CC, PC	MT
Policy 3: Provide financial, logistical, and regulatory support for expanded public transportation, active transportation options, and climate-friendly transportation options.				
	1	Continue annual financial support within the means of the Town for Green Mountain Transit (GMT) service to and through Underhill.	SB	CT
	2	Continue to support and promote services provided by the Special Services Transportation Agency (SSTA) and the United Way's Neighbor Rides program.	SB	CT
	3	Conduct outreach and promote use of GMT & SSTA services.	TTTC	CT

Strategies	4	Inquire with Chittenden Area Transportation Management Association (CATMA) about educational opportunities for residents pertaining to transportation options.	PZA, TTTC	ST
	5	Survey Underhill's residents to better understand current barriers to transportation and the public transportation/alternative transportation needs of Underhill's residents, especially for its most vulnerable populations like the elderly and low-income residents.	PC	ST
	6	Investigate transportation resources such as the AARP's Roadmaps for Livability, which includes a transportation workbook:	PC	ST
	7	Participate in regional and local transportation initiatives and collaborations such as the Tri-Town Transportation Committee.	SB	CT
	8	Comply with VT Act 34 (the Complete Streets Law), except in the case of unpaved highways, to ensure the needs of all users are considered when planning, constructing, and maintaining transportation infrastructure.	SB, RF, TA, HIEC	CT
	9	Actively encourage the implementation of the planned River Road bike/walk lane with local and regional planning bodies.	SB, TA, HIEC, CC, RC	ST
	10	Recommend to the Selectboard that they update the road and bridge standards to ensure guardrails allow sufficient room for pedestrians between the travelled portion of the highway and the placement of the guardrail.	PC	ST
	11	Review and consider revising regulations in a manner that will better facilitate public transportation and park and ride lots.	PC, SB	MT
	12	Encourage use of a common ride share application (e.g. cell phone application) as a focal point for Town ride sharing.	PC, EC	LT
	13	Conduct pedestrian and bicyclist safety awareness workshops.	RC	CT
	14	Explore the feasibility of constructing a sidewalk in Underhill Center.	SB, RC, CC, RF	ST
	15	Facilitate the conversion to electric vehicles by identifying potential public EV-charging stations; educating residents on the benefits of EVs and fuel cell vehicles and the state of utility incentives available; and encouraging the Town to lead by example.	PC	ST

Chapter 5 - Infrastructure

			Actor	Term
Policy 1: Improve and maintain the Town's infrastructure in a fiscally responsible manner.				
Strategies	1	Continue the strategic and long-term planning of capital assets and capital projects that support the maintenance of the Town's infrastructure.	HIEC, PC, PZA, RF, SB	CT
	2	In the event the current procedures for long-term planning and capital assets cease to satisfy the requirements of the Town, adopt a Capital Improvement Program (CIP).	SB	CT
	3	Perform periodic energy audits and follow recommendations made in such audits where economically feasible.	EC, SB	CT
	4	Explore new technology and maintenance techniques that could reduce infrastructure expenditures (e.g. rehabilitating existing gravel roads).	SB, HIEC, RF	CT
	5	Explore using possible local sources of sand and gravel with considerations regarding cost, effectiveness and environmental issues.	HIEC, EC, CC, PC, RF, SB	CT
	6	Continue to pursue grants for infrastructure improvements.	HIEC TA, RF, SB	CT
	7	Perform cost/benefit analyses of equipment on a periodic basis to determine if an equipment upgrade would result in material savings over the usable life of the asset.	FO, HIEC, RF	CT
Policy 2: Maintain Town infrastructure in a manner that protects the health, safety and public welfare of users, and that minimizes the impact on the Town's natural resources				
Strategies	1	Provide education opportunities to landowners relating to the requirements of the Road Ordinance, as well as appropriate maintenance measures.	PZA, UJFD	ST
	2	Continue to recommend "shared maintenance agreements" for all new subdivisions to ensure private roads and driveways are properly maintained so as to not negatively impact Town roads.	DRB	CT
	3	Pursue mitigation measures with the State that will minimize the impacts to Mountain Road and Stevensville Road due to increased visitation to Underhill State Park and Mt. Mansfield trails.	RF, SB, ANR, PC	ST
	4	See the following chapters for related strategies: Recreation, Natural Resources, Land Use and Transportation.		
Policy 3: Enable regulations that allow for greater housing density and increased water and wastewater capacity in designated areas of Town.				

Chapter 6 - Services

Actor Term

Policy 1: All areas in Underhill should have access to reliable cellular telephone service.

Strategies	1	Identify the areas in Town that do not have access to cellular telephone service.	PC, HIEC	ST
	2	Provide links on the Town's website to cell service providers so that residents can check on whether a provider serves their area.	TA, PZA	ST
	3	Facilitate meetings with interested parties to explore the expansion of cell phone service.	TA, PC, SB	ST
	4	Research funding opportunities to install repeaters so that all residents have cell phone service.	PC, EC	ST

Policy 2: High-speed internet access should be available to all residents in Underhill.

Strategies	1	Identify areas that do not have access to internet service.	PC	ST
	2	Provide links on the Town's website to internet providers so that residents can check on whether a provider serves their area.	TA, PZA	ST
	3	Facilitate meetings with interested parties to explore the expansion of internet service.	TA, PC, SB	ST
	4	Work with the State of Vermont to encourage and provide funding to fiber providers for reliable, affordable internet for all residents.	PC, SB	ST

Policy 3: Ensure the Town is prepared during emergency events and/or situations, and improve response

Strategies	1	Maintain the Local Emergency Management Plan (LEMP) as directed by 20 VSA. § 6.	SB, EMD	CT
	2	Review and update LEMP annually.	SB, EMD	CT
	3	On an annual basis, between Town Meeting Day and May 1, readopt (as recommended by 20 V.S.A. § 6) the LEMP and report the adoption to CCRPC.	SB	CT
	4	Identify volunteers and resources that can be used during emergency related events and situations (e.g. doctors, heavy equipment, generators, etc.).	PC, EMD, UJFD	LT
	5	Periodically upgrade emergency services equipment and infrastructure.	SB, RF, HIEC	CT
	6	Explore the creation of a program that identifies residents that may need additional assistance during an emergency event (for example, residents on respirators or dialysis during a power outage event).	PC, UJFD, EMD	ST
	7	Collaborate with the Town's Energy Committee to implement emergency service strategies that are not dependent on fossil fuels (e.g. residential batteries that can provide life-saving services to people who rely on electricity to power life-sustaining equipment and can keep critical medications refrigerated).	EC, SB	ST
	8	Explore the installation of solar and battery storage at critical response centers and/or designated emergency centers, such as Red Cross disaster relief centers.	PC, UJFD, EMD	ST
	9	Identify vulnerable residents who heat with electricity and who may need alternative methods for staying warm in the event of a winter outage, as well as groups that deal with vulnerable residents.	PC, UJFD, EMD	ST

Policy 4: Provide residents with fire protection, police, human services, EMS, and emergency services.

Strategies	1	Maintain funding to support emergency response and planning, including related facilities and infrastructure.	SB	CT
	2	Include funding through the planning of capital projects & capital assets, as needed for emergency response services, planning, and infrastructure.	PC, SB	CT
	3	Annually review the adequacy of the Town's contracts for police and other emergency services, and create new contracts with other entities as needed (e.g. VT Army National Guard).	SB	CT
	4	Support the review of current training and certification programs for Chittenden County police officers with respect to training on diversity, equity, and justice and on de-escalating conflict.	PC, SB	ST
	5	Review and consider adopting the Vermont League of Cities and Towns' principles on 21st Century Policing.	PC, SB	ST
	6	Periodically review mutual assistance agreements with other towns and the County.	SB	CT
	7	Encourage community groups or non-profits that support DEI initiatives to build diversity, equity, and inclusion into the community.	PC, SB	CT

Policy 5: Inform the community of local emergency response services, resources, and opportunities to participate in emergency response operations.

Strategies	1	Provide information to residents about local emergency services through the Town's website, annual report, and other outreach channels.	TA, PZA	CT
	2	Provide information about, and encourage volunteer participation in, emergency services.	UJFD, SB	CT
Policy 6: Support and encourage increased availability of child care services.				
Strategies	1	Contact private organizations and State agencies (e.g. Department for Children and Families) to obtain information relating to child daycare services and how to encourage more daycare facilities through zoning regulations.	PC, PZA	ST
	2	Investigate subsidized childcare options that the Town can support.	PC, SB	ST
	3	Coordinate a public forum for Underhill Residents pertaining to child daycare services.	PC	ST
	4	Review and update (where appropriate) the Town's zoning regulations relating to child daycare facilities to help facilitate a more conducive review process.	PC	ST

Chapter 7 - Housing

			Actor	Term
Policy 1: Support the creation of affordable housing stock.				
Strategies	1	Explore alternative strategies to individual wells and septic systems to serve Underhill Center and Underhill Flats that would support greater density, such as community wells and shared septic systems.	PC, SB, TA, PZA	ST
	2	Research the feasibility of extending municipal water and sewer.	SB, TA	MT
	3	Review and consider providing greater density opportunities in areas designated as village centers, especially by encouraging duplexes and multi-family dwellings.	PC	ST
	4	Evaluate the minimum lot size in village growth centers and determine if it should be reduced to encourage increased density in the applicable areas.	PC	ST
	5	Encourage affordable housing by considering regulations that remove some of the restrictions on accessory dwellings.	PC	ST
	6	Review and consider results from the impending State-wide (and potential County-level) housing needs assessment study to guide Town housing policies.	PC	ST
	7	Review the housing needs assessment that studied the housing needs of the community (available on the Town's website) and devise strategies to meet these needs.	PC	ST
	8	Continue to apply for grants and other financial opportunities that consider and incorporate strategies provided by the Housing Needs Study.	PC, PZA, TA	MT
	9	Recommend to the Selectboard the creation of a Housing Board.	PC	ST
Policy 2: Support the creation of housing stock that allows for young individuals, young families and older				
Strategies	1	Host a housing forum to solicit resident input about affordable housing needs in Underhill.	PC	ST
	2	Explore the feasibility of creating a Neighborhood Area Designation for Underhill's village centers: Underhill Center and Underhill Flats.	PC	MT
	3	Encourage multi-generational and multi-income housing by supporting planned residential and planned unit developments, especially in the Town's village centers.	PC, DRB	CT
	4	Continue to evaluate where multi-unit structures are appropriate.	PC	CT
	5	Explore the feasibility of cottage housing.	PC	LT
	6	Work with Chittenden County Regional Planning Commission to implement appropriate housing-related strategies in the ECOS Plan in Underhill.	PC	ST

Chapter 8 - Economic Development

			Actor	Term
Policy 1 Promote and enable local economic activity.				
	1	Create a database of home businesses and other commercial establishments in Town to post on the Town's website.	PZA, PC	ST
	2	Identify infrastructure required to support economic activity in Underhill.	RF, TA, PZA	MT

Strategies	3	Conduct a focus group meeting to obtain a better understanding of the recreation-related interests in Town, as well as how to support them.	PC, RC	ST
	4	Explore the feasibility of creating a master plan pertaining to recreation tourism in the Town.	PC, RC	ST
	5	Consider land use regulations that provide opportunities for appropriate recreational, tourism, and hospitality development.	PC	MT
	6	Review land use regulations and consider amending them to provide opportunities for appropriate commercial development in village centers, and, if appropriate, in other areas of Underhill.	PC	MT
	7	Explore strategies to alleviate administrative obstacles, where appropriate, for new commercial development.	PC	MT
	8	Renew the Village Designations for both the Underhill Flats/Riverside and Underhill Center Village Centers.	PZA, PC, SB	CT
	9	Through the State, promote financial incentives available to property owners within the designated Underhill Flats Village Center and Underhill Center Village Center.	PZA, PC, DRB	CT
	10	Communicate with the Town of Jericho on planning commercial opportunities in the Underhill Flats/Riverside area.	PC	CT
Policy 2: Encourage and promote lands managed for agriculture, forestry and other uses of natural resources				
Strategies	1	Hold public forums to determine what challenges exist for maintaining working lands and for maintaining and increasing local business opportunities.	PC	ST
	2	Hold educational workshops to discuss best management practices to protect the sustainability of working lands, and agricultural and forest opportunities.	PC, CC	CT
	3	Review zoning regulations to assess whether diversification of agricultural businesses is possible, not restricted by local regulations, and to ensure that access to working lands is protected during the subdivision review process.	PC	MT
	4	Continue to support local farmers markets and locally grown agricultural products and consider additional marketing strategies the Town could pursue.	SB, PC	CT
	5	Review, develop, and support additional strategies for long-term viability of agricultural and forest lands.	PC	LT
	6	Recommend to the Selectboard the creation of an Economic Development Board.	PC	ST
	7	Promote local business, services and resources through the potential Economic Development Board or the Greater Burlington Industrial Corporation (GBIC) – the County’s regional development corporation.	PC, SB	CT
	8	Research grant programs offered by county, region, or State and cooperate to promote economic development.	PZA, TA, PC	CT

Chapter 9 - Historic & Cultural Resources

			Actor	Term
Policy 1: Encourage the conservation and protection of Underhill’s historic resources, such as: historic buildings				
Strategies	1	Update the inventory of historic structures in the Town of Underhill.	UHS	ST
	2	Create a volunteer program that would contribute to the preservation of historic structures.	UHS, PC	LT
	3	Revise the adaptive reuse regulations to encourage the repurposing or rehabilitation of historic structures.	PC	MT
	4	Identify funding sources to encourage the preservation of historic structures.	UHS, PC	CT
	5	Explore potential amendments to the Unified Land Use & Development Regulations that will promote and/or facilitate the protection and/or rehabilitation of historic structures and Historic Districts.	UHS, PC	MT
Policy 2: Conserve and protect Underhill’s cultural resources, including its rural character, scenic vistas, outdoor				
Strategies	1	Promote the voluntary identification and preservation of cultural resources.	PC, RC	ST
	2	Identify important scenic resources.	PC	ST
	3	Identify funding resources to maintain, protect, preserve and/or acquire scenic resources.	PC	MT
	4	Identify funding resources to support cultural events like the Harvest Market.	TA	CT
Policy 3: Promote awareness of Underhill’s historic and cultural resources.				

Strategies	1	Devise a strategy to promulgate Underhill's history to residents.	UHS, PC	MT
	2	For other strategies that are related to Historic and Cultural Resources see various strategies in the Recreation & Economic Development Chapters.		

Chapter 10 - Recreation

			Actor	Term
Policy 1: Encourage community involvement at organized events at Town Parks.				
Strategies	1	Host summer food truck nights in Moore Park with live music.	RC	CT
	2	Organize sledding events at Casey's Hill.	RC	CT
	3	Install lights for, and offer hot chocolate at, the ice skating rink in Moore Park during the winter months.	RC	ST
	4	Develop additional event ideas to offer to Underhill residents.	RC	CT
Policy 2: Provide well maintained recreational facilities/resource (e.g. the Town's recreation area, Moore Park,				
Strategies	1	Maintain the pond infrastructure, which includes the pond, picnic areas, tennis courts, and playground area.	RC, RF, SB	CT
	2	Brush hog Casey's Hill as needed.	RF	CT
	3	Maintain the ice skating rink at Moore Park during the winter months.	RC	CT
	4	Develop safety tactics to improve the safety of recreational activities (e.g. pedestrian and bicycling) along the Town's roads.	RC, PC, RF, SB	ST
Policy 3: Support efforts to maintain existing trails and build new trails.				
Strategies	1	Maintain, improve and/or construct active transportation trails in accordance with environmental missions.	RC, CC	CT
	2	Partner with local mountain bike clubs to improve mountain bike access.	RC, SB	ST
	3	Maintain and improve the existing trail network in the Crane Brook Conservation District.	RC, CC	CT
	4	Have the Development Review Board and the Recreation Committee coordinate in regards to potential trail easements.	DRB, RC	CT
	5	Collaborate with local conservation groups to conserve and manage open land for trails.	CC	CT
	6	Explore and support endeavors that would connect Underhill Flats with Underhill Center via trails and/or other multi-modal connectors.	PC, CC, RC, SB	CT
Policy 4: Support the community's recreational interests through strategic planning.				
Strategies	1	Conduct surveys to gauge community interest in recreation activities and resources.	RC	ST
	2	Identify capital projects to include in the planning of capital projects & capital assets that would benefit the Town's recreational facilities/resources.	RC, PC	CT
	3	Identify new low-cost recreational opportunities to provide to Underhill residents.	RC	CT
	4	Periodically review existing and proposed recreation opportunities.	RC	CT
	5	Create a short-term, medium-term and long-term plan that implements potential recreational opportunities.	RC	CT

Appendix B



Photograph by Todd Barker & Val Stori

Implementation Plan (Sorted By Party)

Agency of Natural Resources (ANR)

Chapter No.	Policy No.	Strategy No.		Term
Implementation				
2 (NR)	6	1	Maintain Class I designated wetlands in their natural condition; ensure that permitted alterations in Class II and Class III wetlands do not significantly diminish their functional and ecological integrity, or aesthetic values; and comment on applications submitted to the Vermont Wetlands Offices as necessary to ensure the above. <i>(Partners: DRB, CC)</i>	LT
Outreach & Coordination				
5 (I)	2	3	Pursue mitigation measures with the State that will minimize the impacts to Mountain Road and Stevensville Road due to increased visitation to Underhill State Park and Mt. Mansfield trails. <i>(Partners: RF, SB, PC)</i>	ST
2 (NR)	9	12	Educate landowners about developmental impacts to brooks, streams, and rivers (e.g. illegal construction of bridges). <i>(Partner: ANR)</i>	LT

Conservation Commission (CC)

Chapter No.	Policy No.	Strategy No.		Term
Initiatives				
2 (NR)	10	7	Develop and/or distribute guidelines as they relate to the conservation of water. <i>(Partners: PZA, DRB)</i>	ST
2 (NR)	3	3	Classify steep slopes by considering degrees of steepness, soil types and accessibility. <i>(Partner: PC)</i>	MT
3 (E)	6	2	Review and revise (as appropriate) open space contracts to promote the conservation of valuable forests for GHG reduction and carbon storage. <i>(Partners: SB, EC, PC)</i>	MT
2 (NR)	5	5	Where feasible, control the spread of existing invasive species in coordination with Town-initiated work projects. <i>(Partner: RF)</i>	LT
2 (NR)	6	1	Maintain Class I designated wetlands in their natural condition; ensure that permitted alterations in Class II and Class III wetlands do not significantly diminish their functional and ecological integrity, or aesthetic values; and comment on applications submitted to the Vermont Wetlands Offices as necessary to ensure the above. <i>(Partners: DRB, ANR)</i>	LT
2 (NR)	9	6	Require native plant riparian buffers and maintain setbacks for erosion control along rivers, streams, and ponds to allow natural channel modification. <i>(Partner: PC)</i>	LT
4 (T)	2	2	Maintain public roadways and rights-of-ways free of litter and debris. <i>(Partner: RF)</i>	LT
10 (R)	3	1	Maintain, improve and/or construct active transportation trails in accordance with environmental missions. <i>(Partners: RC)</i>	LT
10 (R)	3	3	Maintain and improve the existing trail network in the Crane Brook Conservation District. <i>(Partner: RC)</i>	LT
10 (R)	3	6	Explore and support endeavors that would connect Underhill Flats with Underhill Center via trails and/or other multi-modal connectors. <i>(Partners: PC, RC, SB)</i>	LT
Mapping				
2 (NR)	1	2	Develop a natural resources map that incorporates the findings from the natural resources inventory. <i>(Partner: PC)</i>	MT
2 (NR)	6	2	Develop a Town natural resources map that accurately depicts, to the best extent possible, wetlands in Underhill. <i>(Partner: PC)</i>	MT
2 (NR)	10	2	Ensure the Town Natural Resource map accurately depicts significant surface waters in Underhill. <i>(Partner: PC)</i>	MT
Research & Data Gathering				
2 (NR)	5	1	Identify priority non-native invasive species (plant and animal) and prioritize areas for monitoring and management.	ST
2 (NR)	10	5	Explore how best to provide well-yeild data to the Development Review Board. <i>(Partners: PC, PZA)</i>	ST
3 (E)	2	4	Identify and encourage the development of specific locations, such as gravel pits and other previously impacted areas, as preferred sites for the siting of renewable energy generation facilities, such as solar arrays. <i>(Partners: EC, PC)</i>	ST
3 (E)	3	2	Explore opportunities that would allow Underhill to utilize local road material resources to reduce the miles driven to transport such materials (e.g. extracting gravel from a site in Town). <i>(Partners: SB, EC, RF)</i>	ST
4 (T)	3	14	Explore the feasibility of constructing a sidewalk in Underhill Center. <i>(Partners: SB, RC, RF)</i>	ST
2 (NR)	1	1	Conduct a natural resources inventory of the Town to identify significant interior forest blocks, significant farmland, and significant natural resources.	MT

2 (NR)	2	1	Evaluate State and regional recommendations pertaining to the locations of significant wildlife habitat.	MT
2 (NR)	2	2	Identify areas of habitat connectors, which includes, but is not limited to: greenways, riparian lands, and forested strips.	MT
2 (NR)	3	2	Identify significant ridgelines by considering scenic value, significant wildlife habitat, water quality and accessibility.	MT
2 (NR)	4	1	Identify the location of rare, threatened and endangered species.	MT
2 (NR)	8	1	Identify areas in Town, if any, where local sources may cause significant air pollution, and if so, how many days per year on average.	MT
2 (NR)	9	1	Identify flooding threats and develop a process to mitigate harmful effects. <i>(Partner: PC)</i>	MT
1 (LU)	2	3	Research and develop zoning related approaches that protect the rural and scenic character and maintain open space. <i>(Partner: PC)</i>	LT
2 (NR)	6	3	Identify priority wetlands for restoration, mitigation and maintenance.	LT
2 (NR)	7	1	Evaluate quantity, quality, and feasibility of extraction with landowner input. <i>(Partners: SB, RF)</i>	LT
3 (E)	2	5	Continue to identify locations for solar power, as well as identifying other renewable energy options, especially for Town buildings as a "Lead by Example" effort. <i>(Partners: SB, EC)</i>	LT
3 (E)	2	6	Identify landowners interested in siting residential solar arrays on their property through outreach programs. <i>(Partner: EC)</i>	LT
5 (I)	1	5	Explore using possible local sources of sand and gravel with considerations regarding cost, effectiveness and environmental issues. <i>(Partners: HIEC, EC, PC, RF, SB)</i>	LT
Policy & Implementation				
2 (NR)	5	4	Develop a Town policy regarding the encounter, remediation, control, management, and removal of invasive species. <i>(Partner: SB)</i>	ST
4 (T)	2	5	Develop guidelines for roadside aesthetics and invasive species. <i>(Partners: PC)</i>	ST
2 (NR)	1	4	Ensure proper access to forest and/or agricultural land. <i>(Partner: DRB)</i>	LT
2 (NR)	4	2	Ensure continued compliance with Vermont law with respect to rare, threatened and endangered species.	LT
2 (NR)	8	2	Consider methods for reducing significant local sources of air pollution, if any are identified. <i>(Partner: EC)</i>	LT
2 (NR)	9	2	Periodically update the Town's All Hazard's Mitigation Plan, which pertains to the inventory of existing structures within mapped floodplains. <i>(Partners: SB, PC)</i>	LT
3 (E)	2	9	Ensure that ground-mounted solar larger than 15 kW AC and wind turbines are located outside of the Underhill Flats Village Center and Underhill Center Village zoning districts. <i>(Partners: PZA, DRB, EC)</i>	LT
Consultation & Coordination				
3 (E)	5	1	Work with the Regional Planning Commission to understand the status and trends of GHG emissions and reductions. <i>(Partners: PZA, PC, EC)</i>	MT
2 (NR)	5	3	Cooperate with private, local, State, and federal groups to address the threat of invasive species. <i>Partner: SB)</i>	LT
2 (NR)	6	7	Seek technical and financial support from State and federal agencies to protect wetlands. <i>(Partners: PC, SB)</i>	LT
2 (NR)	10	4	Seek technical and financial support from State and federal agencies to protect vulnerable surface waters. <i>(Partner: PC)</i>	LT
2 (NR)	1	8	Collaborate with local conservation groups to conserve and manage open land	LT
10 (R)	3	5	Collaborate with local conservation groups to conserve and manage open land for trails	LT
Promotion & Outreach				
3 (E)	1	4	Improve access to energy information, especially with regards to low cost, energy-saving ideas and incentives, by providing that information on the Town's website. <i>(Partner: EC)</i>	ST
3 (E)	5	3	Educate residents about the emissions associated with brush pile and yard waste burning, and encourage the composting of that matter, as well as other organic matter. <i>(Partner: SB)</i>	ST
3 (E)	6	1	Increase outreach to landowners on the role of forests in reducing GHG and carbon storage. <i>(Partner: EC, PC)</i>	ST
2 (NR)	2	3	Seek landowner support in identifying and preserving significant wildlife habitat and habitat connectors. <i>(Partner: PC)</i>	MT
4 (T)	3	9	Actively encourage the implementation of the planned River Road bike/walk lane with local and regional planning bodies. <i>(Partners: SB, TA, HIEC, RC)</i>	MT
2 (NR)	1	3	Provide property owners with information about sustainable land management techniques, as well as sources for technical and financial assistance. <i>(Partner: PZA)</i>	LT
2 (NR)	2	4	Educate landowners about low impact development in significant wildlife habitat. <i>(Partner: PC)</i>	LT

2 (NR)	4	3	Educate residents about rare, threatened and endangered species through outreach programs held annually.	LT
2 (NR)	5	2	Educate residents, visitors and Town personnel regarding the identification, threats, and control of invasive species.	LT
2 (NR)	6	4	Educate landowners about the value, importance and necessity of wetlands and vernal pools.	LT
2 (NR)	6	5	Offer landowners expertise and resources in connection with the management, restoration, maintenance, and creation of wetlands and vernal pools. <i>(Partners: PZA, DRB)</i>	LT
2 (NR)	9	12	Educate landowners about developmental impacts to brooks, streams, and rivers (e.g. illegal construction of bridges). <i>(Partner: ANR)</i>	LT
2 (NR)	10	6	Encourage water conservation through education.	LT
3 (E)	1	3	Continue to educate residents and businesses about energy efficiency and conservation options that reduce their energy consumption, especially in the areas of thermal and household appliance energy expenditures, through outreach programs. <i>(Partner: EC)</i>	LT
3 (E)	1	6	Promote and support improvements to Vermont Energy Dashboard to reflect actual local data. <i>(Partner: EC)</i>	LT
3 (E)	2	9	Provide landowners interested in installing commercial solar power on open land with information on mitigating impacts to pollinators. <i>(Partner: EC)</i>	LT
3 (E)	4	2	Provide information about the costs and benefits of electric vehicles to residents (e.g., public presentations/forums, Front Porch Forum, Mountain Gazette, Town Website, etc.). <i>(Partner: EC)</i>	LT
3 (E)	5	2	Continue to educate residents about GHG and targeted reductions through outreach programs. <i>(Partner: EC)</i>	LT
3 (E)	5	4	Educate residents and businesses about the ability to reduce fossil fuel use for heating by partnering with utilities and energy vendors to promote technologies such as advanced wood heating systems, cold climate heat pumps, and geothermal systems. <i>(Partner: EC)</i>	LT
8 (ED)	2	2	Hold educational workshops to discuss best management practices to protect the sustainability of working lands, and agricultural and forest opportunities. <i>(Partner: PC)</i>	LT

Chittenden County Regional Planning Commission (CCRPC)

Chapter No.	Policy No.	Strategy No.		Term
Initiatives				
2 (NR)	9	11	Review the All Hazard Mitigation Plans on a regular basis and follow-up on identified strategies for emergency preparedness and coordinated response planning efforts. <i>(Partners: EMD, SB)</i>	LT

Development Review Board (DRB)

Chapter No.	Policy No.	Strategy No.		Term
Promotion				
1 (LU)	1	1	Continue to encourage "smart growth principles." <i>(Partner: PZA)</i>	LT
2 (NR)	1	6	Provide guidelines where possible that are consistent with State law and ensure logging does not create environmental instabilities (e.g. increased flooding, erosion, sedimentation, etc.). <i>(Partner: PZA)</i>	LT
2 (NR)	2	6	Promote the utilization of shared driveways and shared curb cuts for development and subdivision projects. <i>(Partners: SB, PZA, RF)</i>	LT
2 (NR)	6	5	Offer landowners expertise and resources in connection with the management, restoration, maintenance, and creation of wetlands and vernal pools. <i>(Partners: PZA, CC)</i>	LT
5 (I)	2	2	Continue to recommend "shared maintenance agreements" for all new subdivisions to ensure private roads and driveways are properly maintained so as to not negatively impact Town roads.	LT
7 (H)	2	3	Encourage multi-generational and multi-income housing by supporting planned residential and planned unit developments, especially in the Town's village centers. <i>(Partner: PC)</i>	LT
8 (ED)	1	9	Through the State, promote financial incentives available to property owners within the designated Underhill Flats Village Center and Underhill Center Village Center. <i>(Partners: PZA, PC)</i>	LT
Implementation				
4 (T)	1	2	Update the Town Road, Driveway & Trail Ordinance regulating private road and driveway construction, while taking into consideration new construction techniques and technologies. <i>(Partners: RF, SB, PZA)</i>	MT
2 (NR)	1	4	Ensure proper access to forest and/or agricultural land. <i>(Partner: CC)</i>	LT
2 (NR)	3	1	Continue to prohibit development above 1500 feet in elevation (fie). <i>(Partner: ZBA)</i>	LT

2 (NR)	6	1	Maintain Class I designated wetlands in their natural condition; ensure that permitted alterations in Class II and Class III wetlands do not significantly diminish their functional and ecological integrity, or aesthetic values; and comment on applications submitted to the Vermont Wetlands Offices as necessary to ensure the above. <i>(Partners: CC, ANR)</i>	LT
2 (NR)	9	7	Adhere to the Municipal Roads Program and permitting requirements and continue to study the contribution of Town roads, bridges, and culverts to stormwater runoff, their adequacy to mitigate runoff, and associated damage. <i>(Partner: SB)</i>	LT
2 (NR)	9	8	Ensure that all new roads, road improvements, and driveways are properly constructed to minimize erosion and scouring; road improvements should follow the 2019 Town Road and Bridge Standards as adopted by the Selectboard. <i>(Partners: PZA, RF, SB)</i>	LT
2 (NR)	9	9	Assure that all new construction employs effective erosion control measures as required in the associated permit and distributed guidelines. <i>(Partners: PZA, RF, SB)</i>	LT
3 (E)	2	9	Ensure that ground-mounted solar larger than 15 kW AC and wind turbines are located outside of the Underhill Flats Village Center and Underhill Center Village zoning districts. <i>(Partners: PZA, EC, CC)</i>	LT
3 (E)	2	10	Locate small distributed wind energy systems (small-scale wind generation) consisting of a single turbine producing up to 100 kW in areas with wind power generation potential such as the prime and base wind potential areas shown on Map 3.1 & Map 3.2. <i>(Partners: PZA, SB)</i>	LT
3 (E)	2	11	Renewable energy generation facilities and associated infrastructure must be located to avoid field verified State & local known constraints, as well as minimize impact to State & local possible constraints (see Table 3.1). <i>(Partners: PZA, SB)</i>	LT

Consultation & Coordination

2 (NR)	10	7	Develop and/or distribute guidelines as they relate to the conservation of water. <i>(Partners: CC, PZA)</i>	ST
4 (T)	2	3	Revise the Town's Road, Driveway & Trail Ordinance where necessary to ensure safe access by emergency vehicle and residents. <i>(Partners: PZA, RF, SB, UJFD, PC)</i>	ST
10 (R)	3	4	Have the Development Review Board and the Recreation Committee coordinate in regards to potential trail easements. <i>(Partner: RC)</i>	LT

Energy Committee (EC)

Chapter No.	Policy No.	Strategy No.	Initiatives	Term
3 (E)	2	4	Identify and encourage the development of specific locations, such as gravel pits and other previously impacted areas, as preferred sites for the siting of renewable energy generation facilities, such as solar arrays. <i>(Partners: CC, PC)</i>	ST
2 (NR)	8	2	Consider methods for reducing significant local sources of air pollution, if any are identified. <i>(Partner: CC)</i>	MT
3 (E)	2	1	Create and maintain a data tracking program that will enable the Town to monitor public and private energy production and energy consumption, and to help confirm if the Town is meeting the interim renewable energy production goal set forth in Table 3.17.	MT
3 (E)	6	2	Review and revise (as appropriate) open space contracts to promote the conservation of valuable forests for GHG reduction and carbon storage. <i>(Partners: SB, CC, PC)</i>	MT
3 (E)	1	2	Seek grant funding to support energy efficiency upgrades for Town-owned buildings. <i>(Partner: SB)</i>	LT
3 (E)	2	9	Ensure that ground-mounted solar larger than 15 kW AC and wind turbines are located outside of the Underhill Flats Village Center and Underhill Center Village zoning districts. <i>(Partners: PZA, DRB, CC)</i>	LT
5 (I)	1	3	Perform periodic energy audits and follow recommendations made in such audits where economically feasible. <i>(Partner: SB)</i>	LT
Research & Data Gathering				
3 (E)	1	7	Investigate the Vermont Climate Pledge Coalition. <i>(Partners: PC, PZA)</i>	ST
3 (E)	3	2	Explore opportunities that would allow Underhill to utilize local road material resources to reduce the miles driven to transport such materials (e.g. extracting gravel from a site in Town). <i>(Partners: SB, CC, RF)</i>	ST
3 (E)	4	1	Identify and implement locations, as well as funding opportunities, for electric vehicle charging stations to encourage the use of electric or hybrid vehicles. <i>(Partner: SB)</i>	ST
3 (E)	2	10	Identify opportunities to facilitate the group purchasing of renewable energy production equipment or installation services (i.e. "community installations") to lower individual costs and encourage development of renewable energy production sources.	MT
3 (E)	1	5	Research the feasibility of implementing a home energy reduction challenge for residents and/or businesses. <i>(Partners: PZA, PC)</i>	LT
3 (E)	2	5	Continue to identify locations for solar power, as well as identifying other renewable energy options, especially for Town buildings as a "Lead by Example" effort. <i>(Partners: SB, CC)</i>	LT

3 (E)	2	6	Identify landowners interested in siting residential solar arrays on their property through outreach programs. <i>(Partners: CC)</i>	LT
3 (E)	3	4	Identify opportunities to replace fossil fuel-burning Town vehicles with vehicles powered by electricity or, in the case of heavy-duty vehicles, by bio-diesel. <i>(Partners: SB, RF)</i>	LT
5 (I)	1	5	Explore using possible local sources of sand and gravel with considerations regarding cost, effectiveness and environmental issues. <i>(Partners: HIEC, CC, PC, RF, SB)</i>	LT

Consultation & Coordination

6 (S)	3	7	Collaborate with the Town's Energy Committee to implement emergency service strategies that are not 100% dependent on fossil fuels. <i>(Partner: SB)</i>	ST
3 (E)	5	1	Work with the Regional Planning Commission to understand the status and trends of GHG emissions and reductions. <i>(Partners: PZA, PC, CC)</i>	MT

Promotion & Outreach

3 (E)	1	4	Improve access to energy information, especially with regards to low cost, energy-saving ideas, by providing that information on the Town's website. <i>(Partners: CC)</i>	ST
3 (E)	6	1	Increase outreach to landowners on the role of forests in reducing GHG and carbon storage. <i>(Partner: CC, PC)</i>	ST
2 (NR)	8	4	Educate Town residents about cleaner burning (wood) stoves and encourage the removal of old stoves through swap programs or programs related to other, similar heating appliances.	LT
3 (E)	1	3	Continue to educate residents and businesses about energy efficiency and conservation options that reduce their energy consumption, especially in the areas of thermal and household appliance energy expenditures, through outreach programs. <i>(Partner: CC)</i>	LT
3 (E)	1	6	Promote and support improvements to Vermont Energy Dashboard to reflect actual local data. <i>(Partners: CC)</i>	LT
3 (E)	2	7	Provide landowners interested in installing commercial solar power on open land with information on mitigating impacts to pollinators. <i>(Partner: CC)</i>	LT
3 (E)	4	2	Provide information about the costs and benefits of electric vehicles to residents (e.g., public presentations/forums, Front Porch Forum, Mountain Gazette, Town Website, etc.). <i>(Partner: CC)</i>	LT
3 (E)	5	2	Continue to educate residents about GHG and targeted reductions through outreach programs. <i>(Partner: CC)</i>	LT
3 (E)	5	4	Educate residents and businesses about the ability to reduce fossil fuel use for heating by partnering with utilities and energy vendors to promote technologies such as advanced wood heating systems, cold climate heat pumps, and geothermal systems. <i>(Partner: CC)</i>	LT
4 (T)	3	12	Encourage use of a common ride share application (e.g. cell phone application) as a focal point for Town ride sharing. <i>(Partner: PC)</i>	LT

Emergency Management Director (EMD)

Chapter No.	Policy No.	Strategy No.	Initiatives	Term
6 (S)	3	6	Explore the creation of a program that identifies residents that may need additional assistance during an emergency event (for example, residents on respirators or dialysis during a power outage event). <i>(Partners: PC, UJFD)</i>	ST
2 (NR)	9	11	Review the All Hazard Mitigation Plans on a regular basis and follow-up on identified strategies for emergency preparedness and coordinated response planning efforts. <i>(Partners: CCRPC, SB)</i>	LT
6 (S)	3	1	Maintain the Local Emergency Management Plan (LEMP) as directed by 20 VSA. § 6. <i>(Partner: SB)</i>	LT
6 (S)	3	2	Review and update LEMP annually. <i>(Partner: SB)</i>	LT
6 (S)	3	4	Identify volunteers and resources that can be used during emergency related events and situations (e.g. doctors, heavy equipment, generators, etc.). <i>(Partners: PC, UJFD)</i>	LT

Financial Officer (FO)

Chapter No.	Policy No.	Strategy No.	Research & Data Gathering	Term
5 (I)	1	7	Perform cost/benefit analyses of equipment on a periodic basis to determine if an equipment upgrade would result in material savings over the usable life of the asset. <i>(Partners: SB, RF)</i>	LT

Highway, Infrastructure and Equipment Committee (HIEC)

Chapter No.	Policy No.	Strategy No.		Term
Implementation				
4 (T)	3	8	Comply with VT Act 34 (the Complete Streets Law), except in the case of unpaved highways, to ensure the needs of all users are considered when planning, constructing, and maintaining transportation infrastructure. <i>(Partners: SB, RF, TA)</i>	LT
6 (S)	3	5	Periodically upgrade emergency services equipment and infrastructure. <i>(Partners: SB, RF)</i>	LT
5 (I)	1	1	Continue the strategic and long-term planning of capital assets and capital projects that support the maintenance of the Town's infrastructure. <i>(Partners: PC, PZA, RF, SB)</i>	LT
Research & Data Gathering				
6 (S)	1	1	Identify the areas in Town that do not have access to cellular telephone service. <i>(Partners: PC)</i>	ST
6 (S)	2	1	Identify areas that do not have access to internet service. <i>(Partner: PC)</i>	ST
5 (I)	1	4	Explore new technology and maintenance techniques that could reduce infrastructure expenditures (e.g. rehabilitating existing gravel roads). <i>(Partners: SB, RF)</i>	LT
5 (I)	1	5	Explore using possible local sources of sand and gravel with considerations regarding cost, effectiveness and environmental issues. <i>(Partners: EC, CC, PC, RF, SB)</i>	LT
Outreach & Coordination				
4 (T)	3	9	Actively encourage the implementation of the planned River Road bike/walk lane with local and regional planning bodies. <i>(Partners: SB, TT, CC, RC)</i>	MT

Jericho-Underhill Water District (JUWD)

Chapter No.	Policy No.	Strategy No.		Term
Research & Data Gathering				
1 (LU)	1	3	Investigate the feasibility of implementing and/or extending public & private water and wastewater treatment systems in the village centers. <i>(Partner: PC)</i>	MT

Planning Commission (PC)

Chapter No.	Policy No.	Strategy No.		Term
Land Use Regulations				
1 (LU)	1	4	Review and update, where appropriate, the allowed uses in the Underhill Flats Village Center and Underhill Center Village zoning districts.	ST
1 (LU)	1	5	Continually review, and update where appropriate, the zoning regulations to make them more "user-friendly."	ST
1 (LU)	2	5	Review and update, where appropriate, the allowed uses in each zoning district outside of the Town's village centers.	ST
2 (NR)	1	7	Amend the <i>Land Use & Development Regulations</i> to address inconsistencies pertaining to the maximum height requirements.	ST
2 (NR)	3	5	Where appropriate, review and update the steep slope regulations.	ST
2 (NR)	7	2	Review and update the Town's zoning regulations as they relate to the extraction of sand, gravel and stone to consider environmental impact.	ST
2 (NR)	8	3	Consider proposing regulations with respect to outdoor wood burning stoves. <i>(Partner: SB)</i>	ST
2 (NR)	10	1	Review the Land Use Regulations as they relate to surface water setbacks and amend if necessary.	ST
3 (E)	2	2	Consider amending the zoning regulations, where appropriate, to enable energy production siting or energy distribution for renewable sources, which should include small-scale wind generation, specifically a small distributed wind energy system consisting of a single turbine producing up to 100 kW.	ST
3 (E)	4	3	Review the Town's zoning regulations and modify as appropriate to support the inclusion of EV charging capacity within the development review process.	ST
6 (S)	6	3	Review and update (where appropriate) the Town's zoning regulations relating to child daycare facilities to help facilitate a more conducive review process.	ST
8 (ED)	1	6	Review land use regulations and consider amending them to provide opportunities for appropriate commercial development in village centers, and, if appropriate, in other areas of Underhill.	ST
8 (ED)	1	5	Consider land use regulations that provide opportunities for appropriate recreational, tourism, and hospitality development.	MT

9 (HCR)	1	3	Revise the adaptive reuse regulations to encourage the repurposing and rehabilitation of historic structures.	MT
1 (LU)	2	6	Continually review, and update where appropriate, the zoning regulations to make them more “user-friendly.”	LT
2 (NR)	9	3	Keep current Flood Hazard Area Regulations and determine whether or not they need to be strengthened.	LT
2 (NR)	9	6	Require native plant riparian buffers and maintain setbacks for erosion control along rivers, streams, and ponds to allow natural channel modification. <i>(Partner: CC)</i>	LT
2 (NR)	9	10	Update Town regulations as techniques and technologies for stormwater control improve and ensure training for Town Employees.	LT
7 (H)	2	3	Encourage multi-generational and multi-income housing by supporting planned residential and planned unit developments, especially in the Town's village centers. <i>(Partner: DRB)</i>	LT
Mapping				
1 (LU)	3	1	Re-examine the future land use map and amend where appropriate.	ST
1 (LU)	3	4	Seek public input on proposed amendments to the zoning map.	ST
3 (E)	2	3	Identify and encourage the development of specific locations, such as gravel pits and other previously impacted areas, as preferred sites for the siting of renewable energy generation facilities, such as solar arrays. <i>(Partners: EC, CC)</i>	ST
1 (LU)	3	2	Research the feasibility of adjusting zoning district boundaries to follow features, which include, but are not limited to, property boundary lines, roads or significant waterways.	MT
1 (LU)	3	3	Apply for grants to assist in evaluating potential options that help resolve the existing zoning map issues.	MT
2 (NR)	1	2	Develop a natural resources map that incorporates the findings from the natural resources inventory. <i>(Partner: CC)</i>	MT
2 (NR)	6	2	Develop a Town natural resources map that accurately depicts, to the best extent possible, wetlands in Underhill. <i>(Partner: CC)</i>	MT
2 (NR)	10	2	Ensure the Town Natural Resource map accurately depicts significant surface waters in Underhill. <i>(Partner: CC)</i>	MT
Policy Implementation				
1 (LU)	2	4	Explore possible options for the clustering of development	ST
2 (NR)	1	5	Consider adopting a “right-to-farm” provision within the Town’s land use regulations.	ST
2 (NR)	3	4	Define the type and amount of proper development, if any, to be allowed on significant ridgelines and steep slopes after classification.	ST
2 (NR)	3	6	Develop design guidelines for landowners to consider in connection with construction on steep slopes.	ST
2 (NR)	9	4	Develop a River Corridor Management Plan to help regulate development in floodplains and lands adjacent to streams.	ST
3 (E)	2	3	Adopt a visual screening ordinance for commercial ground-mounted solar generation facilities that exceed 15kW AC in accordance with 30 V.S.A. § 248(b)(B).	ST
4 (T)	2	3	Revise the Town’s Road, Driveway & Trail Ordinance where necessary to ensure safe access by emergency vehicle and residents. <i>(Partners: PZA, RF, SB, DRB, UJFD)</i>	ST
4 (T)	2	5	Develop guidelines for roadside aesthetics and invasive species. <i>(Partner: CC)</i>	ST
4 (T)	3	10	Recommend to the Selectboard that they update the road and bridge standards to ensure guardrails allow sufficient room for pedestrians between the travelled portion of the highway and the placement of the guardrail.. <i>(Partners: SB, RF)</i>	ST
5 (I)	2	3	Pursue mitigation measures with the State that will minimize the impacts to Mountain Road and Stevensville Road due to increased visitation to Underhill State Park and Mt. Mansfield trails. <i>(Partners: RF, SB, ANR)</i>	ST
6 (S)	3	6	Explore the creation of a program that identifies residents that may need additional assistance during an emergency event (for example, residents on respirators or dialysis during a power outage event). <i>(Partners: UJFD, EMD)</i>	ST
7 (H)	1	9	Recommend to the Selectboard the creation of a Housing Board.	ST
7 (H)	2	6	Work with Chittenden County Regional Planning Commission to implement appropriate housing-related strategies in the ECOS Plan in Underhill.	ST
8 (ED)	1	7	Explore strategies to alleviate administrative obstacles, where appropriate, for new commercial development.	ST
8 (ED)	2	6	Recommend to the Selectboard the creation of an Economic Development Board.	ST
10 (R)	2	4	Develop safety tactics to improve the safety of recreational activities (e.g. pedestrian and bicycling) along the Town's roads. <i>(Partners: RC, RF, SB)</i>	ST
2 (NR)	3	3	Classify steep slopes by considering degrees of steepness, soil types and accessibility. <i>(Partner: CC)</i>	MT
3 (E)	6	2	Review and revise (as appropriate) open space contracts to promote the conservation of valuable forests for GHG reduction and carbon storage. <i>(Partners: SB, EC, CC)</i>	MT

4 (T)	3	11	Review and consider revising regulations in a manner that will better facilitate public transportation and park and ride lots. <i>(Partner: SB)</i>	MT
7 (H)	1	8	Continue to apply for grants and other financial opportunities that consider and incorporate strategies provided by the Housing Needs Study. <i>(Partners: PZA, TA)</i>	MT
8 (ED)	2	3	Review zoning regulations to assess whether diversification of agricultural businesses is possible, not restricted by local regulations, and to ensure that access to working lands is protected during the subdivision review process.	MT
1 (LU)	2	3	Research and develop zoning related approaches that protect the rural and scenic character and maintain open space. <i>(Partner: CC)</i>	LT
2 (NR)	6	7	Seek technical and financial support from State and federal agencies to protect wetlands. <i>(Partners: CC, SB)</i>	LT
2 (NR)	9	2	Periodically update the Town's All Hazard's Mitigation Plan, which pertains to the inventory of existing structures within mapped floodplains. <i>(Partners: SB, CC)</i>	LT
2 (NR)	9	5	In accordance with 20 V.S.A. § 45, consider adopting river corridor protections required by the Emergency Relief Assistance Fund (ERAF) to increase Underhill's State funded support to 17.5% of recover cost in disaster declarations.	LT
2 (NR)	10	4	Seek technical and financial support from State and federal agencies to protect surface waters. <i>(Partner: CC)</i>	LT
4 (T)	3	12	Encourage use of a common ride share application (e.g. cell phone application) as a focal point for Town ride sharing. <i>(Partner: EC)</i>	LT
5 (I)	1	1	Continue the strategic and long-term planning of capital assets and capital projects that support the maintenance of the Town's infrastructure. <i>(Partners: HIEC, PZA, RF, SB)</i>	LT
6 (S)	4	2	Include funding through the planning of capital projects & capital assets, as needed for emergency response services, planning, and infrastructure. <i>(Partner: SB)</i>	LT
8 (ED)	1	8	Renew the Village Designations for both the Underhill Flats/Riverside and Underhill Center Village Centers. <i>(Partners: PZA, SB)</i>	LT
8 (ED)	1	9	Through the State, promote financial incentives available to property owners within the designated Underhill Flats Village Center and Underhill Center Village Center. <i>(Partners: PZA, DRB)</i>	LT
8 (ED)	2	5	Review, develop, and support additional strategies for long-term viability of agricultural and forest lands.	LT
9 (HCR)	1	2	Create a volunteer program that would contribute to the preservation of historic buildings. <i>(Partner: UHS)</i>	LT
Research & Data Gathering				
1 (LU)	2	2	Examine whether the Town's land contracts are an effective way to achieve Town goals. <i>(Partner: SB)</i>	ST
2 (NR)	10	5	Explore how best to provide well-yield data to the Development Review Board. <i>(Partners: CC, PZA)</i>	ST
3 (E)	1	7	Investigate the Vermont Climate Pledge Coalition. <i>(Partners: EC, PZA)</i>	ST
6 (S)	1	1	Identify the areas in Town that do not have access to cellular telephone service. <i>(Partner: HIEC)</i>	ST
6 (S)	2	1	Identify areas that do not have access to internet service. <i>(Partner: HIEC)</i>	ST
6 (S)	6	1	Contact private organizations and State agencies (e.g. Department for Children and Families) to obtain information relating to child daycare services and how to encourage more daycare facilities through zoning regulations. <i>(Partner: PZA)</i>	ST
7 (H)	1	3	Review and consider providing greater density opportunities in areas designated as village centers, especially by encouraging duplexes and multi-family dwellings.	ST
7 (H)	1	4	Evaluate the minimum lot size in village growth centers and determine if it should be reduced to encourage increased density in the applicable areas.	ST
7 (H)	1	5	Encourage affordable housing by considering regulations that remove some of the restrictions on accessory dwellings.	ST
7 (H)	1	6	Review and consider results from the impending State-wide (and potential County-level) housing needs assessment study to guide Town housing policies.	ST
7 (H)	1	7	Review the housing needs assessment that studied the housing needs of the community (available on the Town's website) and devise strategies to meet these needs.	ST
8 (ED)	1	1	Create a database of home businesses and other commercial establishments in Town to post on the Town's website. <i>(Partner: PZA)</i>	ST
8 (ED)	1	4	Explore the feasibility of creating a master plan pertaining to recreation tourism in the Town. <i>(Partner: RC)</i>	ST
9 (HCR)	2	2	Identify important scenic resources.	ST
1 (LU)	1	3	Investigate the feasibility of implementing and/or extending public & private water and wastewater treatment systems in the village centers. <i>(Partner: JUWD)</i>	MT
2 (NR)	9	1	Identify flooding threats and develop a process to mitigate harmful effects. <i>(Partner: CC)</i>	MT

3 (E)	5	1	Work with the Regional Planning Commission to understand the status and trends of GHG emissions and reductions. <i>(Partners: PZA, EC, CC)</i>	MT
7 (H)	1	1	Explore alternative strategies to individual wells and septic systems to serve Underhill Center and Underhill Flats that would support greater density, such as community wells and shared septic systems. <i>(Partners: SB, TA, PZA)</i>	MT
7 (H)	2	2	Explore the feasibility of creating a Neighborhood Area Designation for Underhill's village centers: Underhill Center and Underhill Flats.	MT
9 (HCR)	1	4	Identify funding sources to encourage the preservation of historic buildings. <i>(Partner: UHS)</i>	MT
9 (HCR)	2	3	Identify funding sources to maintain, protect, preserve and/or acquire scenic resources.	MT
3 (E)	1	5	Research the feasibility of implementing a home energy reduction challenge for residents and/or businesses. <i>(Partners: PZA, EC)</i>	LT
5 (I)	1	5	Explore using possible local sources of sand and gravel with considerations regarding cost, effectiveness and environmental issues. <i>(Partners: HIEC, EC, CC, RF, SB)</i>	LT
6 (S)	3	4	Identify volunteers and resources that can be used during emergency related events and situations (e.g. doctors, heavy equipment, generators, etc.). <i>(Partners: EMD, UJFD)</i>	LT
7 (H)	2	4	Continue to evaluate where multi-unit structures are appropriate.	LT
7 (H)	2	5	Explore the feasibility of cottage housing.	LT
8 (ED)	2	8	Research grant programs offered by county, region, or State and cooperate to promote economic development. <i>(Partners: PZA, TA)</i>	LT
10 (R)	3	6	Explore and support endeavors that would connect Underhill Flats with Underhill Center via trails and/or other multi-modal connectors. <i>(Partners: CC, RC, SB)</i>	LT
10 (R)	4	2	Identify capital projects to include in the planning of capital projects & capital assets that would benefit the Town's recreational facilities/resources. <i>(Partner: RC)</i>	LT
Research & Data Gathering				
3 (E)	6	1	Increase outreach to landowners on the role of forests in reducing GHG and carbon storage. <i>(Partners: EC, CC)</i>	ST
6 (S)	1	3	Facilitate meetings with interested parties to explore the expansion of cell phone service. <i>(Partners: TA, SB)</i>	ST
6 (S)	2	3	Facilitate meetings with interested parties to explore the expansion of internet service. <i>(Partners: TA, SB)</i>	ST
6 (S)	6	3	Coordinate a public forum for Underhill Residents pertaining to child daycare services.	ST
7 (H)	2	1	Host a housing forum to solicit resident input about affordable housing needs in Underhill.	ST
8 (ED)	1	3	Conduct a focus group meeting to obtain a better understanding of the recreation-related interests in Town, as well as how to support them. <i>(Partner: RC)</i>	ST
8 (ED)	2	1	Hold public forums to determine what challenges exist for maintaining working lands and for maintaining and increasing local business opportunities.	ST
9 (H&CR)	2	1	Promote the voluntary identification and preservation of cultural resources. <i>(Partner: RC)</i>	ST
2 (NR)	2	3	Seek landowner support in identifying and preserving significant wildlife habitat and habitat connectors. <i>(Partner: CC)</i>	MT
9 (H&CR)	3	1	Devise a strategy to promulgate Underhill's history to residents. <i>(Partner: UHS)</i>	MT
2 (NR)	2	4	Educate landowners about low impact development in significant wildlife habitat. <i>(Partner: CC)</i>	LT
8 (ED)	1	10	Communicate with the Town of Jericho on planning commercial opportunities in the Underhill Flats/Riverside area.	LT
8 (ED)	2	2	Hold educational workshops to discuss best management practices to protect the sustainability of working lands, and agricultural and forest opportunities. <i>(Partner: CC)</i>	LT
8 (ED)	2	4	Continue to support local farmers markets and locally grown agricultural products and consider additional marketing strategies the Town could pursue. <i>(Partner: SB)</i>	LT
8 (ED)	2	7	Promote local business, services and resources through the potential Economic Development Board or the Greater Burlington Industrial Corporation (GBIC) – the County's regional development corporation. <i>(Partner: SB)</i>	LT
Planning & Zoning Administrator (PZA)				
Chapter No.	Policy No.	Strategy No.		Term
Implementation				
4 (T)	1	2	Update the Town Road, Driveway & Trail Ordinance regulating private road and driveway construction, while taking into consideration new construction techniques and technologies. <i>(Partners: RF, SB, DRB)</i>	MT
2 (NR)	3	1	Continue to prohibit development above 1500 feet in elevation (fie). <i>(Partner: DRB)</i>	LT

2 (NR)	9	8	Ensure that all new roads, road improvements, and driveways are properly constructed to minimize erosion and scouring; road improvements should follow the 2019 Town Road and Bridge Standards as adopted by the Selectboard. <i>(Partners: RF, DRB, SB)</i>	LT
2 (NR)	9	9	Ensure that all new construction employs effective erosion control measures as required in the associated permit and distributed guidelines. <i>(Partners: RF, DRB, SB)</i>	LT
3 (E)	2	9	Ensure that ground-mounted solar larger than 15 kW AC and wind turbines are located outside of the Underhill Flats Village Center and Underhill Center Village zoning districts. <i>(Partners: DRB, EC, CC)</i>	LT
3 (E)	2	10	Locate small distributed wind energy systems (small-scale wind generation) consisting of a single turbine producing up to 100 kW in areas with wind power generation potential such as the prime and base wind potential areas shown on Map 3.1 & Map 3.2. <i>(Partners: DRB, SB)</i>	LT
3 (E)	2	11	Renewable energy generation facilities and associated infrastructure must be located to avoid field verified State & local known constraints, as well as minimize impact to State & local possible constraints (see Table 3.1). <i>(Partners: DRB, SB)</i>	LT
Policy Research & Implementation				
2 (NR)	10	7	Develop and/or distribute guidelines as they relate to the conservation of water. <i>(Partners: CC, DRB)</i>	ST
4 (T)	2	3	Revise the Town's Road, Driveway & Trail Ordinance where necessary to ensure safe access by emergency vehicle and residents. <i>(Partners: RF, SB, DRB, UJFD, PC)</i>	ST
7 (H)	1	8	Continue to apply for grants and other financial opportunities that consider and incorporate strategies provided by the Housing Needs Study. <i>(Partners: PC, TA)</i>	MT
5 (I)	1	1	Continue the strategic and long-term planning of capital assets and capital projects that support the maintenance of the Town's infrastructure. <i>(Partners: HIEC, PC, RF, SB)</i>	LT
8 (ED)	1	8	Renew the Village Designations for both the Underhill Flats/Riverside and Underhill Center Village Centers. <i>(Partners: PC, SB)</i>	LT
General Research & Data Gathering				
2 (NR)	10	5	Explore how best to provide well-yield data to the Development Review Board. <i>(Partners: PC, CC)</i>	ST
2 (NR)	10	8	Develop a database of wells and wastewater systems.	ST
3 (E)	1	7	Investigate the Vermont Climate Pledge Coalition. <i>(Partners: EC, PC)</i>	ST
4 (T)	2	1	Identify new or continued roadway and driveway safety issues and seek to implement feasible remedial measures. <i>(Partner: RF)</i>	ST
4 (T)	3	4	Inquire with Chittenden Area Transportation Management Association (CATMA) about educational opportunities for residents pertaining to transportation options. <i>(Partner: TTTTC)</i>	ST
6 (S)	6	1	Contact private organizations and State agencies (e.g. Department for Children and Families) to obtain information relating to child daycare services and how to encourage more daycare facilities through zoning regulations. <i>(Partner: PC)</i>	ST
8 (ED)	1	1	Create a database of home businesses and other commercial establishments in Town to post on the Town's website. <i>(Partner: PC)</i>	ST
3 (E)	5	1	Work with the Regional Planning Commission to understand the status and trends of GHG emissions and reductions. <i>(Partners: PC, EC, CC)</i>	MT
7 (H)	1	1	Explore alternative strategies to individual wells and septic systems to serve Underhill Center and Underhill Flats that would support greater density, such as community wells and shared septic systems. <i>(Partners: PC, SB, TA)</i>	MT
8 (ED)	1	2	Identify infrastructure required to support economic activity in Underhill. <i>(Partners: RF, TA)</i>	MT
3 (E)	1	5	Research the feasibility of implementing a home energy reduction challenge for residents and/or businesses. <i>(Partners: EC, PC)</i>	LT
8 (ED)	2	8	Research grant programs offered by county, region, or State and cooperate to promote economic development. <i>(Partners: TA, PC)</i>	LT
Promotion				
6 (S)	1	2	Provide links on the Town's website to cell service providers so that residents can check on whether a provider serves their area. <i>(Partner: TA)</i>	ST
6 (S)	2	2	Provide links on the Town's website to internet providers so that residents can check on whether a provider serves their area. <i>(Partner: TA)</i>	ST
1 (LU)	1	1	Continue to encourage "smart growth principles." <i>(Partner: DRB)</i>	LT
2 (NR)	1	3	Provide property owners with information about sustainable land management techniques, as well as sources for technical and financial assistance. <i>(Partner: CC)</i>	LT
2 (NR)	1	6	Provide guidelines where possible that are consistent with State law and ensure logging does not create environmental instabilities (e.g. increased flooding, erosion, sedimentation, etc.). <i>(Partner: DRB)</i>	LT
2 (NR)	2	6	Promote the utilization of shared driveways and shared curb cuts for development and subdivision projects. <i>(Partners: SB, DRB, RF)</i>	LT

2 (NR)	6	5	Offer landowners expertise and resources in connection with the management, restoration, maintenance, and creation of wetlands and vernal pools. <i>(Partners: DRB, CC)</i>	LT
8 (ED)	1	9	Through the State, promote financial incentives available to property owners within the designated Underhill Flats Village Center and Underhill Center Village Center. <i>(Partners: PC, DRB)</i>	LT
Outreach				
6 (S)	5	1	Provide information to residents about local emergency services through the Town's website, annual report, and other outreach channels. <i>(Partner: TA)</i>	ST
1 (LU)	1	2	Provide information to village center landowners pertaining to the Village Center Designation Program administered by the Vermont Department of Housing & Community Development.	LT
5 (I)	2	1	Provide education opportunities to landowners relating to the requirements of the Road Ordinance, as well as appropriate maintenance measures. <i>(Partner: UJFD)</i>	LT
Recreation Committee (RC)				
Chapter No.	Policy No.	Strategy No.		Term
Initiatives				
10 (R)	1	3	Install lights for, and offer hot chocolate at, the ice skating rink in Moore Park during the winter months.	ST
10 (R)	4	1	Conduct surveys to gauge community interest in recreation activities and resources.	ST
10 (R)	1	1	Host summer food truck nights in Moore Park with live music.	LT
10 (R)	1	2	Organize sledding events at Casey's Hill.	LT
10 (R)	1	4	Develop additional event ideas to offer to Underhill residents.	LT
10 (R)	2	1	Maintain the pond infrastructure, which includes the pond, picnic areas, tennis courts, and playground area. <i>(Partners: RF, SB)</i>	LT
10 (R)	2	3	Maintain the ice skating rink at Moore Park during the winter months.	LT
10 (R)	3	1	Maintain, improve and/or construct active transportation trails in accordance with environmental missions. <i>(Partners: CC)</i>	LT
10 (R)	3	3	Maintain and improve the existing trail network in the Crane Brook Conservation District. <i>(Partner: CC)</i>	LT
10 (R)	4	4	Periodically review existing and proposed recreation opportunities.	LT
Policy				
10 (R)	2	4	Develop safety tactics to improve the safety of recreational activities (e.g. pedestrian and bicycling) along the Town's roads. <i>(Partners: PC, RF, SB)</i>	ST
10 (R)	4	5	Create a short-term, medium-term and long-term plan that implements potential recreational opportunities.	LT
Research & Data Gathering				
4 (T)	3	14	Explore the feasibility of constructing a sidewalk in Underhill Center. <i>(Partners: SB, CC, RF)</i>	ST
8 (ED)	1	3	Conduct a focus group meeting to obtain a better understanding of the recreation-related interests in Town, as well as how to support them. <i>(Partner: PC)</i>	ST
9 (H&CR)	2	1	Promote the voluntary identification and preservation of cultural resources. <i>(Partner: PC)</i>	ST
10 (R)	4	2	Identify capital projects to include in the planning of capital projects & capital assets that would benefit the Town's recreational facilities/resources. <i>(Partner: PC)</i>	LT
10 (R)	4	3	Identify new low-cost recreational opportunities to provide to Underhill residents.	LT
Coordination, Promotion & Outreach				
8 (ED)	1	4	Explore the feasibility of creating a master plan pertaining to recreation tourism in the Town. <i>(Partner: PC)</i>	ST
10 (R)	3	2	Partner with local mountain bike clubs to improve mountain bike access. <i>(Partner: SB)</i>	ST
4 (T)	3	9	Actively encourage the implementation of the planned River Road bike/walk lane with local and regional planning bodies. <i>(Partners: SB, TA, HIEC, CC)</i>	MT
4 (T)	3	11	Conduct pedestrian and bicyclist safety awareness workshops.	LT
10 (R)	3	4	Have the Development Review Board and the Recreation Committee coordinate in regards to potential trail easements. <i>(Partner: DRB)</i>	LT
10 (R)	3	6	Explore and support endeavors that would connect Underhill Flats with Underhill Center via trails and/or other multi-modal connectors. <i>(Partners: PC, CC, SB)</i>	LT

Road Foreman (RF)

Chapter No.	Policy No.	Strategy No.		Term
Initiatives				
2 (NR)	5	5	Where feasible, control the spread of existing invasive species in coordination with Town-initiated work projects. <i>(Partner: CC)</i>	LT
3 (E)	3	1	Reduce Town equipment fuel usage by 9%. <i>(Partners: SB)</i>	LT
3 (E)	3	3	Ensure that Town vehicles adhere to all emission standards as established by the State and federal government. <i>(Partner: SB)</i>	LT
4 (T)	2	2	Maintain public roadways and rights-of-ways free of litter and debris. <i>(Partner: CC)</i>	LT
5 (I)	1	6	Continue to pursue grants for infrastructure improvements. <i>(Partners: TA, SB)</i>	LT
6 (S)	3	5	Periodically upgrade emergency services equipment and infrastructure. <i>(Partners: SB, HIEC)</i>	LT
10 (R)	2	1	Maintain the pond infrastructure, which includes the pond, picnic areas, tennis courts, and playground area. <i>(Partners: RC, SB)</i>	LT
10 (R)	2	2	Brush hog Casey's Hill as needed.	LT
Implementation				
4 (T)	1	2	Update the Town Road, Driveway & Trail Ordinance regulating private road and driveway construction, while taking into consideration new construction techniques and technologies. <i>(Partners: SB, DRB, PZA)</i>	MT
2 (NR)	9	8	Ensure that all new roads, road improvements, and driveways are properly constructed to minimize erosion and scouring; road improvements should follow the 2019 Town Road and Bridge Standards as adopted by the Selectboard. <i>(Partners: PZA, DRB, SB)</i>	LT
2 (NR)	9	9	Assure that all new construction employs effective erosion control measures as required in the associated permit and distributed guidelines. <i>(Partners: PZA, DRB, SB)</i>	LT
4 (T)	3	8	Comply with VT Act 34 (the Complete Streets Law), except in the case of unpaved highways, to ensure the needs of all users are considered when planning, constructing, and maintaining transportation infrastructure. <i>(Partners: SB, TA, HIEC)</i>	LT
Policy				
4 (T)	1	1	Review and consider VTrans Road and Bridges standards and adopt, where appropriate, Standards for Town with respect to roadway construction and maintenance. <i>(Partner: SB)</i>	ST
4 (T)	2	3	Revise the Town's Road, Driveway & Trail Ordinance where necessary to ensure safe access by emergency vehicle and residents. <i>(Partners: PZA, SB, DRB, UJFD, PC)</i>	ST
10 (R)	2	4	Develop safety tactics to improve the safety of recreational activities (e.g. pedestrian and bicycling) along the Town's roads. <i>(Partners: RC, PC, SB)</i>	ST
4 (T)	2	4	Strongly encourage the Town's road crew to attend workshops regarding roadside maintenance and invasive species. <i>(Partner: SB)</i>	LT
5 (I)	1	1	Continue the strategic and long-term planning of capital assets and capital projects that support the maintenance of the Town's infrastructure. <i>(Partners: HIEC, PC, PZA, SB)</i>	LT
Research & Data Gathering				
3 (E)	3	2	Explore opportunities that would allow Underhill to utilize local road material resources to reduce the miles driven to transport such materials (e.g. extracting gravel from a site in Town). <i>(Partners: SB, EC, CC)</i>	ST
4 (T)	2	1	Identify new or continued roadway and driveway safety issues and seek to implement feasible remedial measures. <i>(Partner: PZA)</i>	ST
4 (T)	3	14	Explore the feasibility of constructing a sidewalk in Underhill Center. <i>(Partners: SB, RC, CC)</i>	ST
8 (ED)	1	2	Identify infrastructure required to support economic activity in Underhill. <i>(Partners: TA, PZA)</i>	MT
2 (NR)	7	1	Evaluate quantity, quality, and feasibility of extraction with landowner input. <i>(Partners: SB, CC)</i>	LT
3 (E)	3	4	Identify opportunities to replace fossil fuel-burning Town vehicles with vehicles powered by electricity or, in the case of heavy-duty vehicles, by bio-diesel. <i>(Partners: SB, EC)</i>	LT
3 (E)	3	8	Identify and upgrade local roadways to include bike lanes, especially between Underhill Center and Underhill Flats. <i>(Partners: SB, TA)</i>	LT
5 (I)	1	4	Explore new technology and maintenance techniques that could reduce infrastructure expenditures (e.g. rehabilitating existing gravel roads). <i>(Partners: SB, HIEC)</i>	LT
5 (I)	1	5	Explore using possible local sources of sand and gravel with considerations regarding cost, effectiveness and environmental issues. <i>(Partners: HIEC, EC, CC, PC, SB)</i>	LT
5 (I)	1	7	Perform cost/benefit analyses of equipment on a periodic basis to determine if an equipment upgrade would result in material savings over the usable life of the asset. <i>(Partners: FO, SB)</i>	LT

Promotion, Outreach & Coordination				
5 (I)	2	3	Pursue mitigation measures with the State that will minimize the impacts to Mountain Road and Stevensville Road due to increased visitation to Underhill State Park and Mt. Mansfield trails. <i>(Partners: SB, ANR, PC)</i>	ST
2 (NR)	2	6	Promote the utilization of shared driveways and shared curb cuts for development and subdivision projects. <i>(Partners: SB, DRB, PZA)</i>	LT
Selectobard (SB)				
Chapter No.	Policy No.	Strategy No.	Initiatives	Term
4 (T)	3	7	Participate in regional and local transportation initiatives and collaborations such as the Tri-Town Transportation Committee.	ST
10 (R)	3	2	Partner with local mountain bike clubs to improve mountain bike access. <i>(Partner: RC)</i>	ST
2 (NR)	2	5	Purchase and/or acquire easements to protect and encourage contiguous significant wildlife habitat.	LT
2 (NR)	6	6	Purchase or acquire easements to protect vulnerable wetlands.	LT
2 (NR)	10	3	Purchase or acquire easements to protect vulnerable surface waters.	LT
3 (E)	1	1	Improve the energy efficiency of Town building(s) by 9% by the end of this Plan (2028). <i>(Partner: TA)</i>	LT
3 (E)	1	2	Seek grant funding to support energy efficiency upgrades for Town-owned buildings. <i>(Partners: EC)</i>	LT
3 (E)	3	1	Reduce Town equipment fuel usage by 9%. <i>(Partners: RF)</i>	LT
3 (E)	3	3	Ensure that Town vehicles adhere to all emission standards as established by the State and federal government. <i>(Partner: RF)</i>	LT
3 (E)	3	5	Continue to support regional bus services as a means to reduce transportation GHG emissions.	LT
4 (T)	3	1	Continue annual financial support within the means of the Town for Green Mountain Transit (GMT) service to and through Underhill.	LT
4 (T)	3	2	Continue to support and promote services provided by the Special Services Transportation Agency (SSTA) and the United Way's Neighbor Rides program.	LT
5 (I)	1	6	Continue to pursue grants for infrastructure improvements. <i>(Partners: TA, RF)</i>	LT
6 (S)	3	5	Periodically upgrade emergency services equipment and infrastructure. <i>(Partners: RF, HIEC)</i>	LT
6 (S)	4	1	Maintain funding to support emergency response and planning, including related facilities and infrastructure.	LT
6 (S)	4	3	Annually review the adequacy of the Town's contracts for police and other emergency services, and create new contracts with other entities as needed (e.g. VT Army National Guard).	LT
6 (S)	4	4	Periodically review mutual assistance agreements with other towns and the County.	LT
8 (ED)	1	8	Renew the Village Designations for both the Underhill Flats/Riverside and Underhill Center Village Centers. <i>(Partners: PZA, PC)</i>	LT
10 (R)	2	1	Maintain the pond infrastructure, which includes the pond, picnic areas, tennis courts, and playground area. <i>(Partners: RC, RF)</i>	LT
10 (R)	3	6	Explore and support endeavors that would connect Underhill Flats with Underhill Center via trails and/or other multi-modal connectors. <i>(Partners: PC, CC, RC)</i>	LT
Regulatory Implementation				
4 (T)	2	3	Revise the Town's Road, Driveway & Trail Ordinance where necessary to ensure safe access by emergency vehicle and residents. <i>(Partners: PZA, RF, DRB, UJFD, PC)</i>	ST
4 (T)	1	2	Update the Town Road, Driveway & Trail Ordinance regulating private road and driveway construction, while taking into consideration new construction techniques and technologies. <i>(Partners: RF, DRB, PZA)</i>	MT
2 (NR)	9	7	Adhere to the Municipal Roads Program and permitting requirements and continue to study the contribution of Town roads, bridges, and culverts to stormwater runoff, their adequacy to mitigate runoff, and associated damage. <i>(Partner: DRB)</i>	LT
2 (NR)	9	8	Ensure that all new roads, road improvements, and driveways are properly constructed to minimize erosion and scouring; road improvements should follow the 2019 Town Road and Bridge Standards as adopted by the Selectboard. <i>(Partners: PZA, RF, DRB)</i>	LT
2 (NR)	9	9	Assure that all new construction employs effective erosion control measures as required in the associated permit and distributed guidelines. <i>(Partners: PZA, RF, DRB)</i>	LT
3 (E)	2	12	Locate small distributed wind energy systems (small-scale wind generation) consisting of a single turbine producing up to 100 kW in areas with wind power generation potential such as the prime and base wind potential areas shown on Map 3.1 & Map 3.2. <i>(Partners: DRB, PZA)</i>	LT

3 (E)	2	13	Renewable energy generation facilities and associated infrastructure must be located to avoid field verified State & local known constraints, as well as minimize impact to State & local possible constraints (see Table 3.1). <i>(Partners: DRB, PZA)</i>	LT
4 (T)	3	8	Comply with VT Act 34 (the Complete Streets Law), except in the case of unpaved highways, to ensure the needs of all users are considered when planning, constructing, and maintaining transportation infrastructure. <i>(Partners: RF, TA, HIEC)</i>	LT
Selectboard (SB)				
Chapter No.	Policy No.	Strategy No.		Term
Initiatives				
6 (S)	3	1	Maintain the Local Emergency Management Plan (LEMP) as directed by 20 VSA. § 6. <i>(Partner: EMD)</i>	LT
6 (S)	3	2	Review and update LEMP annually. <i>(Partner: EMD)</i>	LT
6 (S)	3	3	On an annual basis, between Town Meeting Day and May 1, readopt (as recommended by 20 V.S.A. § 6) the LEMP and report the adoption to CCRPC.	LT
Policy				
2 (NR)	5	4	Develop a Town policy regarding the encounter, remediation, control, management, and removal of invasive species. <i>(Partner: CC)</i>	ST
2 (NR)	8	3	Consider proposing regulations with respect to outdoor wood burning stoves. <i>(Partner: PC)</i>	ST
5 (I)	2	3	Pursue mitigation measures with the State that will minimize the impacts to Mountain Road and Stevensville Road due to increased visitation to Underhill State Park and Mt. Mansfield trails. <i>(Partners: RF, ANR, PC)</i>	ST
10 (R)	2	4	Develop safety tactics to improve the safety of recreational activities (e.g. pedestrian and bicycling) along the Town's roads. <i>(Partners: RC, PC, RF)</i>	ST
3 (E)	6	2	Review and revise (as appropriate) open space contracts to promote the conservation of valuable forests for GHG reduction and carbon storage. <i>(Partners: EC, CC, PC)</i>	MT
2 (NR)	9	2	Periodically update the Town's All Hazard's Mitigation Plan, which pertains to the inventory of existing structures within mapped floodplains. <i>(Partners: PC, CC)</i>	LT
4 (T)	2	4	Strongly encourage the Town's road crew to attend workshops regarding roadside maintenance and invasive species. <i>(Partner: RF)</i>	LT
5 (I)	1	1	Continue the strategic and long-term planning of capital assets and capital projects that support the maintenance of the Town's infrastructure. <i>(Partners: HIEC, PC, PZA, RF)</i>	LT
5 (I)	1	3	Perform periodic energy audits and follow recommendations made in such audits where economically feasible. <i>(Partner: EC)</i>	LT
6 (S)	4	2	Include funding through the planning of capital projects & capital assets, as needed for emergency response services, planning, and infrastructure. <i>(Partner: PC)</i>	LT
Research & Data Gathering				
1 (LU)	2	1	Review the terms and conditions of the Town's land contracts.	ST
1 (LU)	2	2	Examine whether the Town's land contracts are an effective way to achieve Town goals. <i>(Partner: PC)</i>	ST
3 (E)	3	2	Explore opportunities that would allow Underhill to utilize local road material resources to reduce the miles driven to transport such materials (e.g. extracting gravel from a site in Town). <i>(Partners: EC, CC, RF)</i>	ST
3 (E)	4	1	Identify and implement locations, as well as funding opportunities, for electric vehicle charging stations to encourage the use of electric or hybrid vehicles. <i>(Partner: EC)</i>	ST
4 (T)	1	1	Review and consider VTrans Road and Bridges standards and adopt, where appropriate, Standards for Town with respect to roadway construction and maintenance. <i>(Partner: RF)</i>	ST
4 (T)	3	14	Explore the feasibility of constructing a sidewalk in Underhill Center. <i>(Partners: RC, CC, RF)</i>	ST
4 (T)	3	11	Review and consider revising regulations in a manner that will better facilitate public transportation and park and ride lots. <i>(Partner: PC)</i>	MT
7 (H)	1	1	Explore alternative strategies to individual wells and septic systems to serve Underhill Center and Underhill Flats that would support greater density, such as community wells and shared septic systems. <i>(Partners: PC, TA, PZA)</i>	MT
7 (H)	1	2	Research the feasibility of extending municipal water and sewer. <i>(Partner: TA)</i>	MT
2 (NR)	7	1	Evaluate quantity, quality, and feasibility of extraction with landowner input. <i>(Partners: RF, CC)</i>	LT
2 (NR)	9	11	Review the All Hazard Mitigation Plans on a regular basis and follow-up on identified strategies for emergency preparedness and coordinated response planning efforts. <i>(Partners: CCRPC, SB)</i>	LT
3 (E)	2	7	Continue to identify locations for solar power, as well as identifying other renewable energy options, especially for Town buildings as a Lead By Example effort. <i>(Partners: CC, EC)</i>	LT

3 (E)	3	4	Identify opportunities to replace fossil fuel-burning Town vehicles with vehicles powered by electricity or, in the case of heavy-duty vehicles, by bio-diesel. <i>(Partners: EC, RF)</i>	LT
3 (E)	3	8	Identify and upgrade local roadways to include bike lanes, especially between Underhill Center and Underhill Flats. <i>(Partners: TA, RF)</i>	LT
5 (I)	1	4	Explore new technology and maintenance techniques that could reduce infrastructure expenditures (e.g. rehabilitating existing gravel roads). <i>(Partners: HIEC, RF)</i>	LT
5 (I)	1	5	Explore using possible local sources of sand and gravel with considerations regarding cost, effectiveness and environmental issues. <i>(Partners: HIEC, EC, CC, PC, RF)</i>	LT
5 (I)	1	7	Perform cost/benefit analyses of equipment on a periodic basis to determine if an equipment upgrade would result in material savings over the usable life of the asset. <i>(Partners: FO, RF)</i>	LT
Promotion				
3 (E)	5	3	Educate residents about the emissions associated with brush pile and yard waste burning, and encourage the composting of that matter, as well as other organic matter. <i>(Partner: CC)</i>	ST
3 (E)	2	6	Encourage solar generation on preferred locations and/or previously impacted areas (e.g. gravel pits, etc.).	MT
4 (T)	3	9	Actively encourage the implementation of the planned River Road bike/walk lane with local and regional planning bodies. <i>(Partners: TA, HIEC, CC, RC)</i>	MT
2 (NR)	2	6	Promote the utilization of shared driveways and shared curb cuts for development and subdivision projects. <i>(Partners: DRB, PZA, RF)</i>	LT
6 (S)	5	2	Provide information about, and encourage volunteer participation in, emergency services. <i>(Partner: UJFD)</i>	LT
8 (ED)	2	4	Continue to support local farmers markets and locally grown agricultural products and consider additional marketing strategies the Town could pursue. <i>(Partner: PC)</i>	LT
8 (ED)	2	7	Promote local business, services and resources through the potential Economic Development Board or the Greater Burlington Industrial Corporation (GBIC) – the County’s regional development corporation. <i>(Partner: PC)</i>	LT
6 (S)	1	3	Facilitate meetings with interested parties to explore the expansion of cell phone service. <i>(Partners: TA, PC)</i>	ST
6 (S)	2	3	Facilitate meetings with interested parties to explore the expansion of internet service. <i>(Partners: TA, PC)</i>	ST
6 (S)	3	7	Collaborate with the Town’s Energy Committee to implement emergency service strategies that are not dependent on fossil fuels (e.g. residential batteries that can provide life-saving services to people who rely on electricity to power life-sustaining equipment and can keep critical medications refrigerated).. <i>(Partner: EC)</i>	ST
2 (NR)	5	3	Cooperate with private, local, State, and federal groups to address the threat of invasive species. <i>(Partner: CC)</i>	LT
2 (NR)	6	7	Seek technical and financial support from State and federal agencies to protect wetlands. <i>(Partners: CC, PC)</i>	LT
3 (E)	3	7	Collaborate with adjacent towns to improve transportation options for movement between town population centers, including through Chittenden Area Transportation Management Association (CATMA). <i>(Partner: TTTC)</i>	LT
Town Administrator (TA)				
Chapter No.	Policy No.	Strategy No.		Term
Initiatives				
7 (H)	1	8	Continue to apply for grants and other financial opportunities that consider and incorporate strategies provided by the Housing Needs Study. <i>(Partners: PC, PZA)</i>	MT
3 (E)	1	1	Improve the energy efficiency of Town building(s) by 9% by the end of this Plan (2028). <i>(Partner: SB)</i>	LT
5 (I)	1	6	Continue to pursue grants for infrastructure improvements. <i>(Partners: RF, SB)</i>	LT
Implementation				
4 (T)	3	8	Comply with VT Act 34 (the Complete Streets Law), except in the case of unpaved highways, to ensure the needs of all users are considered when planning, constructing, and maintaining transportation infrastructure. <i>(Partners: SB, RF, HIEC)</i>	LT
Research & Data Gathering				
7 (H)	1	1	Explore alternative strategies to individual wells and septic systems to serve Underhill Center and Underhill Flats that would support greater density, such as community wells and shared septic systems. <i>(Partners: PC, SB, PZA)</i>	MT
7 (H)	1	2	Research the feasibility of extending municipal water and sewer. <i>(Partner: SB)</i>	MT
8 (ED)	1	2	Identify infrastructure required to support economic activity in Underhill. <i>(Partners: RF, PZA)</i>	MT
3 (E)	3	6	Identify funding opportunities to support the purchase of Town electric or biodiesel vehicles.	LT

3 (E)	3	8	Identify and upgrade local roadways to include bike lanes, especially between Underhill Center and Underhill Flats. <i>(Partners: SB, RF)</i>	LT
8 (ED)	2	8	Research grant programs offered by county, region, or State and cooperate to promote economic development. <i>(Partners: PZA, PC)</i>	LT
9 (H&CR)	2	4	Identify funding resources to support cultural events like the Harvest Market.	LT
Promotion & Outreach				
6 (S)	1	2	Provide links on the Town's website to cell service providers so that residents can check on whether a provider serves their area. <i>(Partner: PZA)</i>	ST
6 (S)	1	3	Facilitate meetings with interested parties to explore the expansion of cell phone service. <i>(Partners: PC, SB)</i>	ST
6 (S)	2	2	Provide links on the Town's website to internet providers so that residents can check on whether a provider serves their area. <i>(Partners: PZA)</i>	ST
6 (S)	2	3	Facilitate meetings with interested parties to explore the expansion of internet service. <i>(Partners: PC, SB)</i>	ST
6 (S)	5	1	Provide information to residents about local emergency services through the Town's website, annual report, and other outreach channels. <i>(Partner: PZA)</i>	ST
4 (T)	3	7	Actively encourage the implementation of the planned River Road bike/walk lane with local and regional planning bodies. <i>(Partners: SB, HIEC, CC, RC)</i>	MT
Tri-Town Transportation Committee (TTTC)				
Chapter No.	Policy No.	Strategy No.		Term
Consultation & Coordination				
4 (T)	3	4	Inquire with Chittenden Area Transportation Management Association (CATMA) about educational opportunities for residents pertaining to transportation options. <i>(Partner: PZA)</i>	ST
3 (E)	3	7	Collaborate with adjacent towns to improve transportation options for movement between town population centers, including through Chittenden Area Transportation Management Association (CATMA). <i>(Partner: SB)</i>	LT
4 (T)	3	3	Conduct outreach and promote use of GMT & SSTA services.	LT
Underhill-Jericho Fire Department (UJFD)				
Chapter No.	Policy No.	Strategy No.		Term
Initiatives				
6 (S)	3	4	Identify volunteers and resources that can be used during emergency related events and situations (e.g. doctors, heavy equipment, generators, etc.). <i>(Partners: PC, EMD)</i>	LT
6 (S)	3	6	Explore the creation of a program that identifies residents that may need additional assistance during an emergency event (for example, residents on respirators or dialysis during a power outage event). <i>(Partners: PC, EMD)</i>	ST
Policy Implementation				
4 (T)	2	3	Revise the Town's Road, Driveway & Trail Ordinance where necessary to ensure safe access by emergency vehicle and residents. <i>(Partners: PZA, RF, SB, DRB, PC)</i>	ST
Outreach & Coordination				
5 (I)	2	1	Provide education opportunities to landowners relating to the requirements of the Road Ordinance, as well as appropriate maintenance measures. <i>(Partner: PZA)</i>	LT
6 (S)	5	2	Provide information about, and encourage volunteer participation in, emergency services. <i>(Partner: SB)</i>	LT
9 (HCR)	3	1	Devise a strategy to promulgate Underhill's history to residents. <i>(Partner: PC)</i>	MT
9 (HCR)	1	2	Create a volunteer program that would contribute to the preservation of historic structures. <i>(Partner: PC)</i>	LT
Research & Data Gathering				
9 (HCR)	1	1	Identify historic buildings in the Town of Underhill.	ST
9 (HCR)	1	4	Identify funding sources to encourage the preservation of historic structures. <i>(Partner: PC)</i>	MT

Appendix C



Photograph Submitted by Tim Durbrow

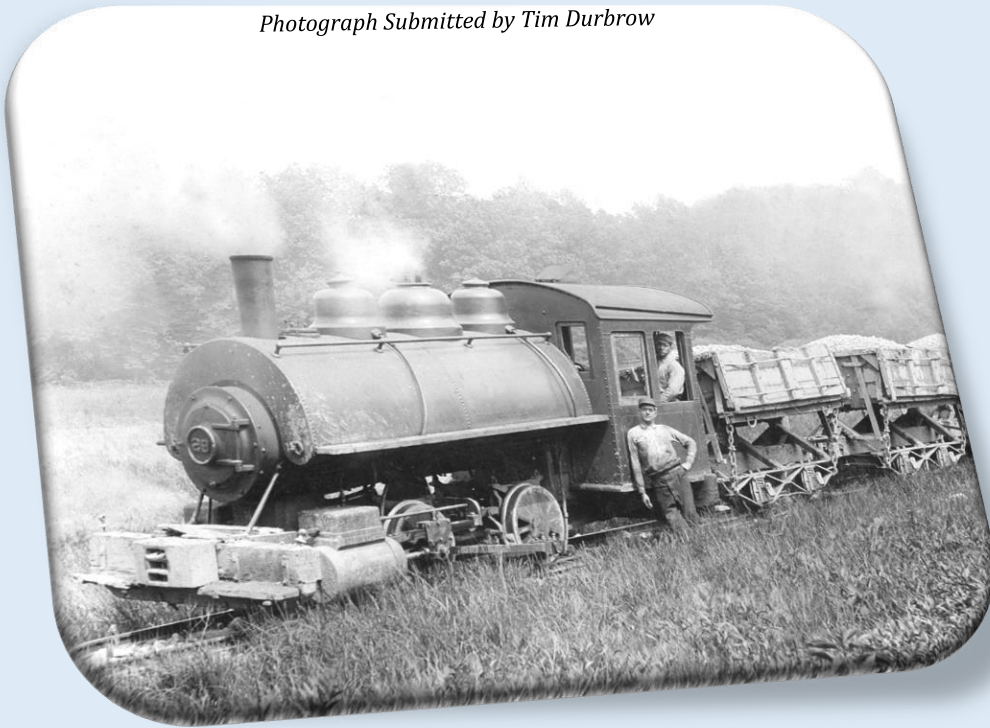
Underhill Highway Details

Road Code	Road Name	Town Highway #	Class	Mileage	Total Dwellings	Single-Family Dwellings	Accessory Dwellings	Mobile Homes	Multi-Family Dwellings (Units)	Camps	Businesses
AR	Acer Ridge	Private	P	0.03	5	4	1				
BR	Barrett Lane	60	3	0.15	5	5					
BH	Basin Hill Lane	Private	P	0.05	3	3					
BS	Baslow Lane	Private	P	0.21	3	3					
BE	Beartown Road	40 & 63	3	1.59	36	34	2				
BV	Beaverbrook Hill	Private	P	0.29	11	10		1			
BC	Bill Cook Road	5	3	0.55	9	8	1				
BD	Black Dog Lane	Private	P	0.11	2	2					
BL	Blakey Road	33	3	0.47	7	7					
BP	Briar Patch Lane	Private	P	0.14	3	3					
BT	Bridle Trail	Private	P	0.26	4	4					
BB	Brook Bend	Private	P	0.17	7	3			4		
BU	Butler Road	11	4	0.60	4	3					1
CS	Chads Road	Private	P	0.28	5	5					
CW	Chamberlin Woods	Private	P	0.32	3	3					
CH	Cilley Hill Road	30	3	1.55	18	15	3				
CI	Circling Hawk Road	Private	P	0.41	2	2					
CK	Clark Road	7	3	0.30	3	3					
CD	Cloverdale Road	Private	P	0.62	16	15		1			
CN	Conifer Lane	Private	P	0.10	3	3					
CB	Corbett Road	17	3 4	0.88 0.27	16	14	1			1	
CO	Covey Road	3	3 4	0.61 0.15	10	9		1			
DA	Daudelin Road	18	3	0.36	4	4					
DE	Deane Road	15 Private	3 4 P	0.15 1.10 0.33	8	4				3	1
DR	Deer Run	Private	P	0.06	3	2		1			
DP	Depot Street	34	3	0.06	8	3	1		4		
DO	Doon Road	13	3	0.19	6	6					
DW	Downs Road	6	3 4	0.31 0.40	12	11				1	
DH	Duffy Hill Road	Private	P	0.07							
DM	Dumas Road	51	3	0.10	6	6					
ED	Edgemont Road	Private	P	0.21	3	2	1				
EM	Ellsworth Meadow Lane	Private	P	0.40	6	4				2	
EG	Evergreen Road	59	3	0.35	9	9					
FE	Fern Hollow	Private	P	0.11	3	3					
FR	Fox Run Road	56	3	0.27	6	6					
FL	French Hill Road	Private	P	0.15	5	5					
FU	Fuller Road	26	4	1.30	5	3				2	1
GA	Grand Army of the Republic	50	3	0.01							
GK	Gerts Knob Road	19 Private	3 P	0.25 0.08	3	3					
GR	Green Street	48 & 49	3	0.22	4	2					2
HR	Harvest Run	Private	P	0.15	6	5					1
HA	Harvey Road	27 Private	3 P	0.82 0.30	13	10	1			1	
HK	Hawk Ridge	Private	P	0.17	5	5					
HH	Hedgehog Hill	Private	P	0.34	3	3					
HV	Hidden View Road	Private	P	0.28	4	4					
HI	High Meadows Road	40	3	0.18	7	7					
HL	Highland Road	Private	P	0.58	7	7					
HC	Hill Crest Lane	Private	P	0.34	3	2		1			
HB	Hobart Hill Road	Private	P	0.18	2	2					
HO	Howard Road	38	4	0.11							
IS	Irish Settlement Road	4 & 35	3	6.47	104	90	11	1		1	1
JH	Jackson Hill Road	Private	P	0.42	6	6					
JB	Jacobs Hill	Private	P	0.32	6	6					
KD	Keds Lane	Private	P	0.12	3	3					
KY	Kelley Road	22 Private	3 P	0.10 0.55	8	7	1				
KN	Kent Rawson Road	31	3	0.06							
KR	Krug Road	42	3 4	0.61 0.07	16	15	1				
KU	Kusserow Road	41	3	0.09	2						
LR	Lap Run	Private	P	0.19							
LH	Ledge Hill Road	Private	P	0.20	3	3					
LE	Lower English Settlement	24	3	1.21	20	19	1				
MA	Macomber View	Private	P	0.19	4	3	1				
ML	Maple Leaf Road	36	3	1.35	9	7	1				1
MR	Maple Ridge	54	3	0.70	21	21					
MC	McClellan Farm Road	33	3	0.68	10	10					
MD	Meadow Lane	52 & 53	3	0.95	29	28	1				
ME	Metcalf View	Private	P	0.34	6	6					

Road Code	Road Name	Town Highway #	Class	Mileage	Total Dwellings	Single-Family Dwellings	Accessory Dwellings	Mobile Homes	Multi-Family Dwellings (Units)	Camps	Businesses
MG	Montgomery Road	47	3	0.06	1	1					
MN	Min's Lane	Private	P	0.11	4	3	1				
MO	Moose Run	Private	P	0.37	4	3	1				
MT	Mountain Road	2	3 4	2.49 0.33	17	13	1			3	
MV	Mt. Vista Road	62	3	0.44	7	7					
MU	Mullen Road	8 Private	3 P	0.30 0.12	11	10	1				
NR	New Road	26	3	0.75	4	2		1			1
NU	North Underhill Station Road	9	3	0.90	13	13					
OR	Orchard Road	Private	P	0.46	4	4					
OC	Otter Creek	Private	P	0.11	3	3					
PG	Page Road	10 Private	3 P	0.45 0.21	8	6					2
PA	Park Street	1	2	0.40	12	1			8		3
PC	Paul Cook Road	43	3	0.30	3	3					
PR	Pine Ridge Road	61	3	0.35	13	12	1				
PY	Piney Grove	Private	P	0.17	2	2					
PN	Pinnacle Ridge	Private	P	0.20	5	5					
PV	Pleasant Valley Road	1	2	6.04	90	76	6		6		2
PH	Poker Hill Road	3	3	6.50	124	111	6	3	2		2
PM	Proctor Maple Research Road	28	3	0.10							1
RA	Range Road	44	3	0.70	26	26					
RH	Raven Hill Road	Private	P	0.17	4	4					
RE	Repa Road	21	3	0.99	20	17	1	1		1	
RV	River Road	1	2	2.31	48	38	7	2			1
RB	Roaring Brook	Private	P	0.13	9	9					
RO	Romar Drive	55	3	0.13	5	5					
RD	Roy Drive	Private	P	0.09	4	2		2			
RU	Russin Drive	Private	P	0.25	7	5	2				
SA	Sage Road	Private	P	0.26	4	2	1			1	
SW	Sam Ward Road	45	3	0.40	7	6	1				
SH	Sand Hill Road	4	3	1.00	27	22	5				
SN	Snyder Road	Private	P	0.33	3	3					
SO	South Hill Drive	Private	P	0.36	6	6					
SP	Spruce Lane	57	3	0.22	7	6	1				
ST	Stevensville Road	37	3 4	1.67 1.04	43	32	5			6	
SU	Sugar Hill	52	3	0.68	25	25					
SY	Sheperd's Way	Private	P	0.12							
TA	Tatro Road	Private	P	0.16	1	1					
TH20	Town Highway #20	20	3	0.14	2						
TH25	Town Highway #25	25	3	0.09	2						
TH32	Town Highway #32	32	4	0.73							
TH46	Town Highway #46	46	3	0.01							
TR	Timber Ridge Road	58 Private	3 P	0.29 0.42	16	16					
TU	Tupper Road	23 & 25	3 4	0.32 0.33	7	4	3				
UE	Upper English Settlement Road	24	3 4	2.29 0.31	17	16	1				
VF	Vermont Farmhouse Road	Private	P	0.11	3	2		1			
VT	Vermont Route 15	State	S	4.94	94	68	9	12			5
WC	Warner Creek	Private	P	0.17	8	8					
WB	Waughbrook Lane	Private	P	0.40	12	8	1			3	
WS	Westman Road	14	3	0.30	2	2					
WH	Wheeler Road	Private	P	0.36	4	4					
WI	Wild Berry Lane	Private	P	0.41	9	9					
WO	Woodland Drive	Private	P	0.11	3	2	1				

Appendix D

Photograph Submitted by Tim Durbrow



2020 HJCC Survey & Results

Highway, Equipment, Infrastructure Committee Survey

Section 1 : Class 4 Roads – The Town is not legally obligated to maintain them .

(Circle responses)

O Do you feel the Town should carry a budget for maintaining Class 4 roads?

Yes / No

- If Yes, how much would you support annually per household?

\$5, \$10, \$ 20, \$ 50, \$100

- How would you prioritize spending? (Check if you agree)

- ☐ Length of road
- ☐ Number of properties
- ☐ Number year round residents
- ☐ Total tax basis for road
- ☐ Road condition
- ☐ Amount of road use
- ☐ Other (Please describe) _____

Section 2 : Private Roads_– The Town has no obligation to maintain private roads.

O Should the Town consider converting Private roads to Public?

Yes / No

- If yes, what class road should private roads be converted to.

Class 3 or Class 4

Section 3 : Winter Road Maintenance

O Winter sanding on gravel roads?

Too little About right Too Much

O Winter salt use on paved roads?

Too little About right Too Much

O What type of road do you live on?

Class 1 2 3 4 Private Don't know

March 22,2019

2019 Roads Survey

	<u>Class 1</u>	<u>Class 2</u>	<u>Class 3</u>	<u>Class 4</u>	<u>Private</u>	<u>Don't know</u>	<u>Total</u>	<u>Percent</u>
<u>-</u>								
<u>Class 4 road budget?</u>								
Yes	7	8	38	5	19	19	96	48%
No	14	22	34	1	12	19	102	52%
<u>Spend per household?</u>								
\$5	3	1	5	1	2	4	16	17%
\$10	2	2	17		6	4	31	34%
\$20		3	6		3	5	17	18%
\$50	1	2	5	2	6	3	19	21%
\$100	1	1	2	2	2	1	9	10%
							92	
<u>How to prioritize?</u>								
Length of road	2		6	2	3	3	16	7%
# properties	5	2	10	2	7	7	33	14%
# year round residents	2	2	29	2	6	9	50	22%
Tax basis			8		5	4	17	7%
Road condition	4	3	23	3	10	11	54	23%
Amount of use	3	8	28	4	8	11	62	27%
Other	1		4	2	3	1	11	
							232	
<u>Private road conversion?</u>								
Yes	4	3	12	1	20	7	47	24%
No	16	28	62	5	11	31	153	77%
To Class 3	4	1	8		14	5	32	
To Class 4		1	4	1	3	2	11	
<u>Winter Road Maintenance?</u>								
<u>Sand use</u>								
Too little	2	1	4	1	1		9	5%
About right	17	25	69	4	28	37	180	92%
Too much		1	2		1	2	6	3%
<u>Salt use</u>								
Too little	1	1	3	1	1	1	8	4%
About right	17	23	64	4	27	30	165	83%
Too much	3	6	8		2	7	26	13%

Other Comments on Class 4 roads

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> o Emergency use o Keep them for trails o Maintain up to 4wd access o Access to public resource | <ul style="list-style-type: none"> o Minimal maintenance o How much needed and when last maintained o Safety o Discontinue cl4 or if better condition change to cl3 | <ul style="list-style-type: none"> o Impact on town roads o Coordinate with owners |
|---|---|--|

Appendix E



2020 Town Plan Survey & Results

The 2020 Town Plan survey, which was conducted in early 2019, is available by request or on the Town's website (www.underhillvt.gov).