WESTFORD COMMUNITY WASTEWATER DISPOSAL SYSTEM

ENVIRONMENTAL INFORMATION DOCUMENT

CWSRF LOAN NUMBER RF1-267-1.0

Stone Project ID 19-161

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STONE ENVIRONMENTAL INC

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1. PROJECT IDENTIFICATION

Project Name: Westford Community Wastewater Disposal System

Address: Westford, Vermont 05494

Project Location: Westford Town Center, Vermont

2. PROJECT DESCRIPTION

The Community Wastewater Disposal System is intended by the Town of Westford to represent a permanent, long-term solution to the provision of publicly-supported wastewater treatment capacity in the Westford Town Center area of the Town (Figure 1).

2.1. Project Scope and Duration

Based on detailed studies of the Town Center area, engineering and planning conducted between 2007 and 2020, and the amount of funding available, the estimated impacts evaluated anticipate the following maximum scope:

1. Construction of a collection system serving 23 properties with design capacity of 12,600 gallons per day, extending from the area surrounding the Town Common along Brookside Road.
2. Use of treatment and dispersal technologies approved by the Vermont Department of Environmental Conservation under the Indirect Discharge Rules and/or the Wastewater System and Potable Water Supply Rules, as appropriate to individual uses and site circumstances.
3. Limited construction disturbance for collection and treatment infrastructure, as well as construction of a new disposal field.
4. Provision of sufficient new or additional wastewater treatment capacity within the Project Area to support adaptive re-use of existing buildings, and new or expanded uses or buildings. Full implementation of the community wastewater system will provide 2,530 gallons per day of new wastewater capacity over the estimated 10,071 gallons per day in current flows, representing an increase of approximately 25% over existing conditions. While the translation of new flow capacity to new development or expanded uses is neither direct nor certain, the available new capacity, as well as the availability of treatment that enables more intensive uses (i.e., food-related or restaurant) and frees up on-site lands is expected to create more land use flexibility and intensity within the service area.

For purposes of this EID, the project duration is expected to be through 2023.

2.2. Population Data

The Town of Westford's population grew from 1,740 in 1990 to 2,086 in 2000 but declined slightly from 2,086 to 2,029 in 2000-2010 (US Census and 2021 Westford Town Plan). The American Community Survey estimated the population of Westford to be 2,019 in 2017. The 2021 Town Plan projects slow but steady future population growth with an approximate 10% increase in Westford's population to 2,361 residents by 2050).

The 0 to 19 year old population decreased and the 50 year old and over population increased from 2000 to 2010, and the Town Plan indicates that the population of individuals 19 or younger will stabilize over the course of the next 15 years, while elder population will increase dramatically. The 2021 Town Plan notes that "[f]uture demographics will play an important role in determining which projects and services the Town plans for and implements".

Notwithstanding these population estimates, planning initiatives undertaken by the Town are intended to support population growth within the state-designated Village Center and the state-designated Neighborhood Development Area, large segments of which will be served by the proposed wastewater project. As noted in Section 9 of the 2021 Town Plan, providing wastewater service (as well as other transportation enhancements) supports implementation of the Westford Town Common Conceptual Master Plan . Many of the Town's Residential Development Options and Incentives, detailed in Section 3.2.5 of the 2021 Town Plan, such as the affordable housing density bonus adopted into the Town's subdivision ordinance for the creation of affordable units, the recent Neighborhood Development Area designation, and the Town's provisions for mixed use retail and residential buildings in the Town Plan area, are incentives for creating more and more diverse housing units that could facilitate population growth in the Town Center. However, implementation of these initiatives relies entirely on the provision of adequate wastewater treatment capacity.

2.2.1. Build-Out and Growth Assessments

The new wastewater treatment capacity created by the project, and abandonment of existing on-site leach fields within the 23 properties served, is anticipated to provide a limited, but meaningful and planned, amount of greater land use *intensity* and *variety* within the project area. All properties within the service area already contain at least one developed land use, with an estimated total population of 60 persons in 24 dwelling units and an estimated total of 17 full-time equivalent employees. Existing land uses are characterized in Table 1.

Table 1. Summary of Existing Land Uses in the Project Area

Land Use	Number of Units, Seats/Capacity, or Employees	Estimated Population or Employees
Single-Family Residential	17 dwelling units	@ 2.68 persons/DU = 46 (2021 Westford Town Plan estimate of persons/household)
Multi-Family Residential (apartments)	7 dwelling units	@ 2.0 persons/DU = 16 (2020 American Community Survey average renter household size, State of Vermont)
Institutional Uses: • Westford Common Hall • Brick Meeting House • Town Library	 150 seats 115 seats 140 patron capacity (projected)	 3 employees (0 current, 3 projected) 2 employees (0 current, 2 projected) 10 employees (4 current, 6 projected)
Non-Residential Uses: • Store • Restaurant • Town Office	 90 gpd wastewater capacity 30 seats (9 current, 21 projected) 10 employees	 10 employees (3 current, 7 projected for store and restaurant) 10 employees

With respect to new housing and population growth, the provision of 3,250 gallons per day of new wastewater capacity within the project service area is not anticipated to yield substantial population growth. At the

required design flow per unit of 245 gallons per day, the total new capacity available would support a maximum of 13 new housing units (i.e., 3,185 gpd for 13 units, with 65 gallons of new capacity remaining for other uses). The remaining capacity could support increased use within non-residential structures, such as additional restaurant seats, expanded retail space, or personal service uses. Any of these would provide economic vitality without expanding existing land uses or introducing new structures.

Because the provision of new multi-family housing units is a priority articulated in the 2021 Town Plan, maximum use of new capacity for housing is a reasonable buildout and growth scenario. As detailed in the Town's 2020 application for Vermont Community Development Block Grant (CDBG) funding, the Town is actively seeking to facilitate construction of 6-8 permanently affordable multi-family units on the property at 1705 Vermont Route 128. Assuming 6-8 multi-family units ultimately are constructed on the 1705 Vermont Route 128 property and 1-3 units are constructed elsewhere within the service area, the service area population would potentially increase by 18 residents to a total of 80, an increase of 23% (Table 2).

Table 2. Population Projections with Maximum Additional Housing

	Current		Maximum New Units with Project		Total	
	Number	Estimated Population	Number	Estimated Population	Number	Estimated Population
Single-Family	17	46	0	0	17	46
Multi-Family	7	14	9	18	16	32
Total	24	60	9	18	33	78

With respect to additional physical development, under the Form Based Code Overlay District adopted for the Village District (Chapter 220 and Chapter 260 of the Westford Land Development Regulations), portions of the service area would be eligible to increase the density of principal residential structures and existing lot coverage (See Figure 2-7, Transect Zone Summary Table). However, as noted in the 2020 Application for Community Development Block Grant funding and throughout the 2021 Westford Town Plan, wastewater capacity – not zoning - is the critical limiting factor in the overall buildout potential of the project area. It is possible that once existing structures are connected to a community wastewater system, abandonment of existing on-site leach fields on sites within the project area could yield sufficient land area to construct additional dwelling units or non-residential structures. However, given the limited new additional wastewater capacity created by the proposed project, any such new units would rely on on-site wastewater systems, which significantly limits potential additional buildout capacity. Moreover, on-site wells (Section 2.3) will continue to be used for water supply, limiting on-site development potential.

2.3. Flow Projections

Information used to determine existing and projected wastewater flows within the Project Area includes:

- Planning-level GIS data;
- Results from a survey of property owners;
- Discussions with businesses and landowners;
- Permit information from the Department of Environmental Conservation;
- A needs assessment of existing wastewater infrastructure;
- Calculations of existing and projected design flows for the proposed Project Area.

2.3.1. Condition of Existing Facilities (Water & Wastewater Infrastructure)

Properties in the Project Area served by individual onsite sewage disposal systems. There are no wastewater treatment plants or sewers in the study area. Information on the existing sewage disposal systems was gathered from state permit files, property owner survey questionnaires, interviews, and area site visits.

Permits were found for all public buildings in the study area, except for the Common Hall and former general store. A total of 36 permits were found for 25 parcels in the study area. Most of these permits, particularly for those issued before 2007, were for subdivisions or new construction. Several properties received permits for subdivision, for renovations that included changes to the septic systems, or for repairs to existing systems, at least one of which appeared to represent a “best fix” situation. Permits issued since 2007 were for replacements of failed systems (four, two of which were “best-fix” solutions), subdivisions or new construction (six, at least one of which included a performance-based design), and one permit was issued for redevelopment of an existing residential property into a convenience store with deli using existing water supply and wastewater treatment systems (the new Westford Country Store and Café).

During the 2007-8 alternatives study, the property owner survey collected information regarding existing water supplies and septic systems. Of the 63 surveys sent, responses were received from 32 owners (52%). Appendix C contains a summary of the responses. The data collected provided information about ages and types of septic systems, when septic tanks were last pumped, and repairs or plans on file. Information about types and locations of water supplies and indications of water quality were also collected.

Approximately 13% of the respondents’ onsite systems were constructed prior to 1982, when the first major technical design standards for Vermont were published. Sixty-eight percent of the properties contained leach fields, and one respondent (3%) had a drywell. Five mound systems and two advanced treatment units were identified in the study area. About half of the septic tanks were two or more feet below grade, which means they are difficult to access unless they have access risers on the tanks, and it means that the leach fields may be deeper in order for gravity flow to reach the field. More than half of the responding property owners (58%) said they have a copy of the sketches, plans, or permits for their system.

Three questions were directed towards maintenance of septic tanks and system repairs. Approximately half (48%) of the respondents indicated they pumped their tanks every 1 to 5 years. Eighty-six percent indicated they pumped their tank since 1995, with 73% pumping since 2000. Twenty percent of the respondents indicated upgrades or repairs to their systems within the last ten years.

Most properties in the study areas are served by individual onsite water supplies. The locations of water supplies in the study area were gathered from property owner surveys, from state permits, and from a walking tour of the study area. These individual water supplies with their 100 foot or 150-foot protective buffers are shown on Appendix C, Figure 2. In the Project Area of concern for this PER, five properties are served by shallow water supplies; the majority of the remaining developed properties are served by individual drilled wells. Two shared drilled wells serve the library and Town offices, and 1689 VT Route 128 property and the Brick Meeting House. Two public drilled wells serve the elementary school (System ID VT0006745). The Westford Country Store and Café is in the process of applying for and receiving a public water supply permit for its drilled well.

In 2007-8, a data-driven Geographic Information System (GIS) analysis was completed that combined spatial information, such as USGS topography and NRCS soils information, with local information such as parcel

boundaries, building footprint areas, and building uses, to determine what, if any, constraints a property may contain for onsite wastewater treatment and disposal. Slightly less than half (46%) of the properties evaluated were identified as likely benefiting from an offsite wastewater treatment solution. Parcels with both groundwater and available area limitations are clustered primarily in the immediate vicinity of the Town Common, indicating that a small community system may be needed to meet the needs of these properties.

2.3.2. Existing Flows

Initial year design flows as documented in the PER include 23 initial connections to the system and 42 equivalent users (Table 3).

Table 3. Wastewater Initial Year Project and Design Flow Summary

Street	Use & Design Flow (gpd)	Initial Year Flow (gpd)	Equivalent Users
Brookside Road	4 SFR x 245 gpd/SFR = 980 Common Hall 150 seats x 4 gpd/seat = 600	1,580	
Cambridge Road	1 SFR x 245 gpd/SFR = 245	245	1
Common Road	3 SFR x 245 gpd/SFR = 735 1 Store x 90 gpd/store = 90 Restaurant (17 seats x 27 gpd/seat) = 459	1,284	6
VT Route 128	9 SFR x 245 gpd/SFR = 2,205 7 Apt. x 245 gpd/Apt. = 1,715 Town Office & Library 10 employees x 15 gpd/employee = 150 140 patrons x 4 gpd/patron = 560 Brick Meeting House 115 seats x 14 gpd/seat = 1,610	6,240	28
Initial Year Totals		**9,349**	**42**
ERUs not owned by Town of Westford			**32**

2.3.3. Projected Design Flows

The projected maximum design flows for the project, 12,600 gpd, would represent a 26% increase (3,251 gpd) over the existing design flow. As detailed in Section 2.3.1, this new capacity would likely support a mix of new multi-family units and additional non-residential uses within existing structures. The final design flow will depend on the results of upcoming hydraulic capacity tests and confirmation on the disposal field site, and on the Town's ultimate decision whether to implement advanced treatment of effluent prior to dispersal. Therefore, the 12,600 gpd figure and growth/buildout projections represent the present minimum case.

2.4. Roles and responsibilities of local government

The Town of Westford will own and control the community wastewater system's collection, treatment, and disposal components. During final design, the Town and the design team will develop a wastewater ordinance, including determination of whether connection to the system will be mandatory or voluntary.

3. PURPOSE AND NEED

The Westford Town Center area, not unlike other areas in Town, has clay soils, significant ledge, and a high-water table, making the soils generally unsuitable for wastewater disposal systems. As documented in Section II, the area around the Town Common, Common District and the Village District generally, is the heart of the Town's civic infrastructure. Without community wastewater capacity, small lot sizes and challenging soil and groundwater conditions severely limit the Common and Village District (the Project Area) in terms of supporting both present and desired future uses.

Since the alternatives study, this area's needs related to **health**, **sanitation**, and **aging infrastructure** have become clearer and more urgent. The septic system serving the Town office and library is about 50 years old[1]. The library's septic tank was replaced in 2016, after it collapsed; leakage from the tank had contaminated the water supply shared by the Town Office and library. The shared leach field sits under the parking lot for the Town office and is at the end of its useful life. If this system fails, there is no option or location for an alternate system. It was recently discovered that the septic tank for the 1705 VT Route 128 property, located east of the Town office, also uses the same leach field as the Town office and library. The septic system for the Brick Meeting House is also compromised and nearing the end of its useful life. The Westford Common Hall has only a holding tank, no leach field or disposal area. The tank needs to be pumped regularly. The Westford Common Hall recently spent several thousand dollars repairing the line that runs from the building to the holding tank.

At the very least, the Town must find solutions for its public buildings and civic meeting spaces. The lack of wastewater capacity is limiting commercial development in the village. If the Town concentrates on only finding solutions to the wastewater challenges facing the Town's public structures, a dearth of capacity will still exist for other properties in and around the village. This will prevent significant redevelopment of the village, including the development of any small-scale business or affordable housing. If the Town can develop a community wastewater system, it will eliminate the biggest barrier to the future revitalization and redevelopment of the Town Center.

While working to find solutions for the wastewater challenges facing the Town Center area, the Town has taken several strategic actions to both foster and accommodate **reasonable growth**, including:

- Applying for and receiving Village Center designation for the area surrounding the Town Common in 2010.
- Adopting a form-based zoning code for the Town Center area in 2016[2], which includes detailed design standards to help ensure that any new development honors the character of the Town Common.

[1] https://westfordvt.us/Fwp-content/uploads/2020/F08/Town-Center-development-Questions-Answers.pdf
[2] https://westfordvt.us/wp-content/uploads/2019/09/Westford-Land-Use-Development-Regulations-Adopted-May-10-2018.pdf

- Continuing to investigate possible community wastewater disposal sites identified in the alternatives study, ultimately securing capacity at the Area 1 site as part of the Jackson Farm and Forest Project (now known as the Maple Shade Town Forest[3]); and
- Applying for and receiving Neighborhood Development Area (NDA) designation for the Town Common area in 2019, which included securing conceptual site approval[4] for a soil-based community wastewater system at the Maple Shade Town Forest site.

In 2019-2020, two new projects pose both opportunities and challenges, giving new urgency to the Town's need for a community wastewater treatment system.

The former Spiller Lot, at 26 Common Road, has been adaptively redeveloped into the Westford Country Store and Café, using the property's existing leachfield to support a new and vibrant use—but with very limited café seating and no current options for expanding seats or diversifying uses in the absence of additional wastewater capacity.

The Town is now investigating how the property located at 1705 VT Route 128, also known as the Pigeon property, may be redeveloped by working with the landowner, public agencies, and non-profits[5]. Adaptive redevelopment of this parcel can offer the Town the opportunity to obtain many community benefits and will help set the tone for future development around the Town Common. Benefits for Westford's residents can include permanent public recreational access to the Browns River, an option for a new Town office, options for affordable housing and economic development, improved parking and pedestrian safety, potable drinking water supply, and remediation of contaminated soils. The Town has been awarded a $60,000 VCDP planning grant[6] to advance work on the 1705 VT Route 128 project. If the Town is able to move forward with this project and the Westford Community Wastewater Disposal System, the community wastewater system will have immediate paying users once it is constructed, and the 1705 VT Route 128 property will have its required wastewater capacity. While there is not yet a set number of new customers that may be committed to the community system from this project, no development of the 1705 VT Route 128 property can occur without a wastewater disposal solution – so any improvement of the 1705 VT Route 128 property is dependent on the Town constructing a wastewater disposal system.

4. DISCUSSION OF ALTERNATIVES

4.1. Comparative Analysis of Feasible Alternatives

Four community wastewater collection, treatment, and disposal alternatives were developed. The service area for all alternatives is limited to the Common zoning district, and more specifically to the Designated Village portion of the that zoning district and the route of the collection system along Brookside Road to the

[3] https://westfordvt.us/wp-content/uploads/2019/10/WTL-Long-Term-Management-Plan-2019.pdf
[4] https://accd.vermont.gov/sites/accdnew/files/documents/CD/CPR/DTBoard/NDAProccessforANRWastewaterApproval.pdf
[5] https://westfordvt.us/1705-route128-ad-hoc-steering-committee/
[6] https://westfordvt.us/vermont-community-development-program-vcdp-planning-grant/

wastewater disposal system (Figure 2). Much of the required information supporting each of the alternatives is identical. Thus, the facilities associated with each feasible alternative were detailed individually. Information that is consistent across all alternatives considered is only provided once.

4.1.1. Collection Systems

Each house/connection will utilize an appropriately sized septic tank and effluent pump station (STEP tank) to provide primary treatment in the septic tank and pump the effluent in a shared low-pressure forcemain to a common collection pump station (10,000-gallon est.). Effluent will then be pumped to a dosing pump station located adjacent to the disposal field site off Brookside Road. The common collection system piping and tanks are located within Town lands and Rights of Ways. An easement has been obtained from a private landowner for the dosing station and valve vault serving the disposal field at the Maple Shade site, and an easement will be obtained from a private landowner, if necessary, for the pump station and control panel near the Town Common.

4.1.2. Treatment Alternatives

Primary treatment will be provided at each connection by a septic tank (Section 4.1.1). Alternatives #2 and #4 (#4 being the recommended alternative) provide advanced treatment of the waste prior to disposal at the Maple Shade field. The advanced treatment system utilized will be an accepted innovative/alternative treatment system as approved by the State of Vermont. This will provide a reduction of the strength of the wastewater prior to disposal, optimizing and extending the life of the on-site disposal system.

Although advanced treatment will be provided collectively for the system, new connections will be evaluated individually to determine waste strength. Advanced treatment may be required for connections with anticipated wastewater strength above that of typical domestic wastewater to protect the collective advanced treatment system. This requirement will be included in the Town's Sewer Ordinance.

4.1.3. Wastewater Disposal Alternatives

Six areas of land within and near the Town Center area were considered as potential cluster system sites during the 2007-8 alternatives study. Of the six sites initially considered, the three closest to the Town Common (Areas 3, 4, and 5) are not suitable for a community wastewater system. Of the remaining sites identified during the alternatives study, Area 6 had potentially suitable soils and site conditions but would require a stream crossing as part of the construction project. Area 2 also had potentially suitable soils and would not require a stream crossing, but its distance from the Town Common would significantly increase construction costs. Area 1, north of Brookside Road and closer to the Town Common, was considered to require a stream crossing during the alternatives study, but site visits completed in 2016-2018 determined that the stream's source is north of the potential disposal site (Appendix A, Figure 2).

Stone Environmental and Green Mountain Engineering completed field and desktop analysis of the soil-based wastewater treatment capacity at Area 1, now known as the Maple Shade Town Forest site. This work determined that a 12,600 gpd wastewater disposal system applying septic tank effluent could be constructed at the site (Section 4.5.1 and Appendix A). This disposal system alternative is identical across project alternatives examined.

In order to increase overall design capacity of the disposal fields, Alternatives 2 and 4 introduce pre-treatment prior to disposal. Pre-treatment can be a cost-effective approach to expanding a disposal field's capacity by reducing the waste strength prior to disposal, allowing application of effluent to the disposal field at higher rates. The potential increase in capacity can be affected by factors including soil conditions, slopes, and depths to ground water and bedrock. Per the Indirect Discharge Rules, effluent loading rates for with pre-treatment can be up to two times than that of septic tank effluent. Thus, the capacity of the proposed disposal field could increase to a total capacity of 25,200 gpd if the hydraulic capacity of the site is proven and if the pre-treatment system can consistently produce effluent that meets the required effluent quality standards.

Additional hydrogeologic evaluation, expanding upon the information in the 2017 capacity evaluation to determine depths to restrictive features and bedrock and to update the existing disposal field capacity analysis, is required to determine whether enhanced pre-treatment is a reasonable alternative to consider. This evaluation will be completed as early in the final design process as possible, expected in the summer of 2021. Based on the available information, it is likely that an increase in capacity can be achieved using pre-treatment, but that increase is unlikely to be a doubling of capacity.

4.1.4. Sludge Disposal

It is assumed that the Town will be responsible for ongoing maintenance of systems, including for the periodic pump-out of septic tanks and maintenance of grease traps as necessary. Responsibility for sludge disposal will be included in the Town's Sewer Ordinance. Facilities proposed are not anticipated to produce substantial volumes of sludge that would require wasting, land application, or landfilling.

Increases in septage volumes from the construction of new connections expanded capacity will be phased in gradually as individual connections are completed, and systems will be designed with tank volumes that can be pumped out by standard pumper trucks. Estimates of current tank capacity and current annual septage volumes generated in the Project Area, as well as anticipated capacity and annual volume at full implementation, are summarized in Table 4.

Table 4. Summary of tankage capacity and annual septage generation estimates

	Volume (gallons)
[1-] Current total tankage capacity (gal)	23,000
[2-] Current septage volume per year	5,000
[3-] Anticipated tankage capacity at full implementation	48,000
[4-] Anticipated septage volume per year	12,000

Source: Estimates based on assumption of individual onsite systems from for 2008 Feasibility Study, as updated.

Notes:

1. 1000 gallons was used as an estimate of septic tank volume. The estimated capacity includes all tankage (septic tanks, grease traps, pump tanks, etc.). Assumes (23 connections) * (1,000 gallon per connection) = 23,000 gallons

2. The annual septage volume calculation assumes that septic tank pump-outs are performed once every five years and that one-fifth of the tanks are pumped each year. Estimates rounded to the nearest 1,000 gallons. (23,000 gallons) / (1/5 per year) = 5,000 gallons

3. Anticipated Tankage Capacity – Assumes linear ratio of current tankage capacity per current 9,720 gpd design flow.
   - (23,000 gallons) / (9,720 gallons per day) = 2.4 gallons per gpd design flow
   - Assumes that alternative #4 design flow rate (using advanced treatment) for the disposal field = 20,000 gpd.
   - Anticipated Tankage Capacity = (20,000 gpd) * (2.4) = 48,000 gallons

4. Anticipated Septage Volume Per Year = (5,000 per year) * (2.4) = 12,000 gallons

Septage will either be trucked to the Village of Essex Junction Water Resource Recovery Facility or land-applied at the discretion of the individual septage hauler. The small increase in overall septage volume anticipated over the duration of this project, equivalent to 7,000 gallons or less than 3 vehicle trips per year using a 2,500-gallon capacity pumper truck, is expected to be easily absorbed within the routine operations of local septic tank pumping services.

4.2. Significant Impacts

The preferred alternative proposed minimizes environmental impacts. For example:

- Collection system infrastructure will be limited in scope and extent;
- No central treatment plant or surface water discharge is proposed; and
- Wetland crossings, stream crossings, and impacts on historical or archaeological resources are minimized, as collection systems, treatment plants, and/or large-scale dispersal fields will be constructed as near the village center as possible.

The potential impacts and affected resources are likely to include:

- Increase in indirect discharge of treated effluent to groundwater (and ultimately to the Browns River)
- Change in land use of the existing open field to accommodate new leachfields
- Excavation and/or system construction in areas potentially containing archaeological sites or artifacts
- Possible extension of collection infrastructure in the vicinity of River Corridors, floodplains, or wetland buffers

Potential impacts and proposed mitigation strategies are further described in Section 5.

4.3. Cost Justification

The preliminary total project cost estimates are in line with projects of similar scope that have been constructed in the State of Vermont. The existing disposal systems within the Project Area have experienced failure and needed replacement and/or are approaching their useful life and thus are likely to require replacement in the next 5-10 years (see PER Section II.c). The soil and site conditions within the Project Area would likely require mounds and/or advanced treatment systems, often with best-fix restrictions precluding new flows, to be installed to meet the Vermont Wastewater System and Potable Water Supply Rules.

The final cost and funding scenario for the project will ultimately drive whether the Town can proceed. Table 8 of the PER outlines a range of funding scenarios and demonstrates that the cost per ERU per year ranges from $1,081 to $2,613 depending on the scenario. Mound disposal systems or systems using advanced treatment can range from $15,000 to $25,000 or more for new construction and require individual landowners to secure funding. Although the final cost to individual property owners for constructing replacement systems in the absence of a community wastewater disposal system is very challenging to forecast, the cost ranges outlined for the proposed wastewater disposal system are generally less expensive than or equivalent to the long-term cost of individual onsite system replacements with costs borne entirely by individual property owners.

The potential environmental impacts of the proposed project, and expected mitigation actions where applicable, are summarized below.

4.4. Air Quality

Since the early 1980's, Vermont has generally been in compliance with federal air quality standards. However, because of persistent regional air quality standards violations that continue in most of the northeastern states, Vermont is required by the federal Clean Air Act to have a SIP for purposes of addressing regional ozone air quality.

During system construction, there is a potential for nuisance noise, dust, and exhaust from construction vehicles. Operating hours for construction will be restricted to minimize impacts to nearby residents. Should unreasonable dust conditions occur, water and/or calcium chloride will be applied as required by contract documents. Construction vehicle exhaust emissions will be controlled in accordance with Federal, state, and local regulations.

If odors become a concern during system operation, they will be mitigated by fitting vent pipes with activated carbon filters, chemical or biological treatment for wet wells, or other best management practice as appropriate to the system and situation.

4.5. Water Quality and Quantity

4.5.1. Surface Water

The proposed project will have design flows of 6,500 gpd or more and will require an Indirect Discharge Permit (Chapter 14 of the Environmental Protection Rules) from the Vermont ANR Indirect Discharge Section. A community wastewater treatment system constructed to support both existing and new development, or to facilitate changes of use that result in increased wastewater flows from existing structures, would be considered a “System with New Indirect Discharge to Class B Waters” under the IDRs.

The Maple Shade Town Forest disposal site was determined to have soil-based capacity such that a 12,600 gpd wastewater disposal system applying septic tank effluent could be constructed. The receiving water for the proposed disposal system’s indirect discharge was determined to be the Browns River (Appendix A). An evaluation of the capacity of the Browns River to assimilate renovated effluent from the proposed community wastewater disposal field while meeting the Aquatic Permitting Criteria (APC) under Vermont’s Indirect Discharge Rules was completed in 2019 (Appendix A). By rule, the APC analysis must demonstrate that the indirect discharge will not raise the instream concentrations of nitrate-nitrogen or total dissolved phosphorus above specified concentrations (a maximum increase of 0.001 mg/L for total dissolved phosphorus and a maximum concentration of 2.0 mg/L for nitrate nitrogen) at the low median monthly streamflow. This assessment determined that the design flow proposed can be treated and dispersed while meeting the nutrient-based APC for nitrate-nitrogen (nitrate-N) and total dissolved phosphorus (TDP) in the Browns River. The Vermont Indirect Discharge Program issued a preliminary capacity determination concurring with the assessment in March 2019 (Appendix A).

Decommissioning of existing on-site wastewater systems during this project may result in reductions in nutrients and pathogens entering the waters of the Browns River and its unnamed tributaries within the Project Area. The extent to which existing systems are underperforming will be further assessed during final design.

Construction-related impacts to surface waters in the Project Area will be minimized through proper implementation of erosion prevention and sediment control practices. The project may cumulatively disturb

more than an acre of land, but the limits of disturbance will be maximized to the extent reasonable. If the project as designed will disturb more than one acre of land area, coverage under Vermont's Construction General Permit (CGP) for Stormwater (Permit 3-9020) will be sought. Regardless of whether coverage under the CGP is necessary, appropriate erosion and sediment control practices for the construction phase of the project will be identified on project plans and specifications in accordance with the "Low Risk Site Handbook for Erosion Prevention and Sediment Control" (2020) or the "Vermont Standards and Specifications for Erosion Prevention and Sediment Control" (2019) as appropriate. If these practices are followed by contractors during construction, contamination of local surface waters by runoff from construction activities should not occur.

4.5.2. Groundwater

The potential impacts of treated effluent from the proposed community wastewater disposal system on groundwater in the Project Area will be mitigated through proper siting, design, construction, and operation of the systems. Any proposed system's design will be approved under the Indirect Discharge Rules as described above.

In any instance where a failing or substandard system is replaced through connection to the proposed community wastewater disposal system. groundwater quality downgradient of the system will be improved through the removal of the substandard system and through proper operation of the newly connected property's connection infrastructure.

4.5.3. Drinking Water Supplies

Construction of the Westford Community Wastewater Disposal System project will result in the decommissioning of existing individual and shared leachfields in the area immediately surrounding the Town Common, reducing conflicts between wastewater dispersal fields and on-site water supplies. If conflicts arise in the future, an alternate water supply source may be procured. In no case is it the Town's intent to compel the owner of an existing on-site water supply to abandon that supply in order to facilitate a wastewater system.

4.6. Environmentally Sensitive Areas

4.6.1. Floodplains and Wetlands

Wetlands located within Maple Shade Town Forest property were evaluated in 2018-19 (Appendix B). The wetland areas delineated during this effort, as well as wetlands included in the Vermont Significant Wetlands Inventory within the Project Area, are illustrated on Figure 3.

Wetland delineation was performed along the anticipated route of the force main from the Town Common area along Brookside Road and in the areas of anticipated disturbance for this project, including construction of pump tanks, force mains, and disposal fields (Appendix B). No wetland areas were identified near areas of expected site disturbance for construction of the proposed community wastewater treatment and disposal system.

The greatest potential for wetland impacts under this project is from construction of collection or disposal system infrastructure. Since no wetlands were mapped or observed within the project area, it is especially unlikely that there would be an acre of cumulative impact on regulated wetland and wetland buffer areas.

Impacts to delineated wetlands and associated buffer zones, if any are identified during final design, will be mitigated using a combination of the following measures:

- *Avoidance.* Alignments of collection systems and force mains, and the positions of pump stations, will be carefully planned to avoid wetland impacts.
- *Erosion and sediment control practices*. Where proposed construction will be close to buffers or delineated wetlands, erosion and sediment control practices will be used to limit impacts to the wetlands from the construction work.
- *Directional borings*. If collection systems must cross streams or delineated wetland areas, directional borings will be utilized to avoid impacts to both types of resources.
- *Permits*. If any proposed disturbance will result in wetland impacts, a General Permit will be sought from the Army Corps of Engineers, and a Vermont Wetlands Permit will be sought from the Vermont Agency of Natural Resources.

The Browns River flows from south to north through Westford's Town Center area and along the eastern edge of the project area. Nearly the entire eastern border of the study area lies within the FEMA-designated 100-year floodplain for the Browns River (Figure 3). Little development is located within or adjacent to the floodplain, and the proposed project activity is centered along VT Route 128. Common Road, and Brookside Road, well above the floodplain and outside River Corridors or other mapped flood hazard areas. Therefore, no impacts are expected or anticipated. As with wetlands, avoidance will be pursued to the greatest extent possible.

4.6.2. Prime Agricultural Land

Areas of prime agricultural soils located within and near the Project Area are shown on Figure 3.

While areas of primary agricultural soils of statewide importance do underlie the developed portions of the Town Center area, construction-related disturbance and the current use of these areas to support homes, businesses, and related infrastructure negate the use of the soils for agricultural purposes. Consistent with this land use pattern, we expect these areas will be considered no impact to primary agricultural soils due to the limitations of accessibility and their locations within a village center.

The area of the proposed community leachfield is upslope of a soil type classified as prime agricultural soils, mapped as Munson and Raynham silt loam with 6 to 12% slopes (MyC). This soil is mapped as Farmland of Statewide Importance and has an Agricultural Value Group of 7d. Based on the historical land use as a farm field, the site does have potential for farming. Regardless, the proposed design minimizes disturbance in the area mapped as prime agricultural soil, and as final design progresses, slight modifications to the proposed force main route or disposal field limits may eliminate disturbance of these soils. The temporary disturbance of any prime agricultural soils for construction of the project would not prevent future agricultural use.

If the Agency of Agriculture, Food, and Markets determines that the proposed project will significantly reduce the agricultural potential of primary agricultural soils, mitigation will be implemented if necessary.

4.6.3. Wildlife Habitat

The uncommon West Virginia white butterfly was observed in 2016 in connection with wetland habitats in the Maple Shade Town Forest[7], but these wetland areas are located well southwest of the Project Area. There were no rare species occurrences found within the Project Area, nor are there any deer wintering areas or other habitats of concern located within this Project Area. Correspondence with the Vermont Fish and Wildlife Department is included in Appendix D.

4.6.4. Stream Modification

Due to the location of the Project Area on the western side of the Browns River, it is not anticipated that crossings of major perennial streams will be required for this project. If any stream crossings become necessary, to minimize the disturbance of streams, it is anticipated that directional drilling will be used if the crossing of streams is necessary during construction.

The Agency of Natural Resources' Rivers Program regulates the alteration of streams including bank stabilization, utility crossings under streambeds, and bridge construction or repair. Stream Alteration Permits may be required for directional borings under existing streams, or for other areas where intermittent streams are present, depending on the size of the contributing watershed. Where applicable, Stream Alteration Permits will be obtained.

4.6.5. Section "404/10 Evaluation"

No dredging or filling, nor discharge of dredged or fill material into the "Waters of the United States", including navigable waters or wetlands, are expected during the implementation this project.

4.7. Socio-Economic Impacts

Through many years of proactive planning the Town of Westford has identified potential socio-economic impacts from the project. Implementation of the community wastewater system is anticipated to have limited but beneficial impacts on local employment, local housing supply and variety, local housing affordability, and property tax revenue to the Town of Westford. As described in Section 2.3.1, the project is likely to create up to 9 new multi-family units, 6 to 8 of which may be dedicated affordable units depending upon the ultimate disposition of the 1705 Vermont Route 128 project. Whether dedicated or market-rate, the availability of additional multi-family housing would address housing diversification and overall affordability in Westford. According to 2018 American Community Survey data, the Town of Westford has only 31 duplex or multi-family dwelling units, compared to 736 single-family detached units. The provision of up to 9 additional multi-family units in this context would represent a 29% increase in the total number of more affordable housing types in the Town.

Employment and Multi-use opportunities: A substantial positive benefit of the project is the expected availability of more wastewater capacity for non-residential uses, and new capacity to treat higher-strength waste from food-related or processing uses. As has been the experience in other Vermont villages, the availability of even a limited amount of additional capacity, and the opportunity to treat higher-strength waste,

[7] https://westfordvt.us/wp-content/uploads/2016/09/Jackson-Forest-Ecologial-Report.pdf

can provide for adaptive reuse of existing buildings and the expansion of businesses such as restaurants and other food-related uses. This is anticipated to yield marginal improvements in employment and, at minimum, stabilization of property value as the uses in the service area no longer face the prospect of losing wastewater treatment capacity and economic opportunity if on-site systems fail or require costly repair.

Uniform relocation and assistance: The project will not require any temporary or permanent relocation of any occupied structures. Very limited and temporary construction-phase impacts on some operations may be experienced while existing septic tanks are abandoned and wastewater system connections are installed.

Parks: No impacts on public park resources are anticipated.

Legal/institutional constraints: Construction and operation of the project will require the execution of easements for implementation of portions of the collection system that are outside of existing Town rights-of-way. No specialty legal services are anticipated to be required to execute the required agreements.

Intermunicipal agreements: The service area is located entirely within the Town of Westford. No intermunicipal agreements are required.

4.8. Historical/Archaeological Sites and National Landmarks

A Phase 1 Archaeological Resource Assessment was completed for the Project Area in 2020-early 2021 (Appendix E).

No National Register, State Register, or National Register-eligible sites are located within the Project Area. Five properties listed in the Vermont Historic Sites and Structures Survey (VHSSS) are located in close proximity to the Westford Common. The village of Westford was chartered in 1763, with the first settler arriving in 1787, with Westford Center being established as the focal point of the town by the end of the 18th century. There is thus a high sensitivity for early historic archeological deposits associated with the early village. Where main collection system lines are placed in the road shoulder, there are no concerns for historic or pre-contact archaeological sensitivity. If sewer main installation will disturb areas outside of the road prism in the area of 33-41 Brookside Road, Phase IB testing is recommended. For service lines placed in driveways, there are no concerns. If service lines are to be placed in undisturbed lawn areas, Phase IB testing is warranted. Finally, the north end of the community wastewater disposal area is level and adjacent to the ravine to a tributary brook, so Phase IB testing is recommended.

4.9. Rare, Threatened or Endangered Species

The online USFWS IPaC application was used to determine RTE, critical habitats, and need for consultation. No endangered species or critical habitats were identified. The Northern long-eared bat was the only threatened species identified. The completed screening determined that the project "may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However…this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation."

The verification letter generated at the completion of this process states: "[T]he Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may

occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat." If the project action is not completed within a year, this information must be updated and resubmitted in the IPaC system. The verification letter is included in Appendix D.

Review of the ANR Natural Resources Atlas mapping for rare, threatened and endangered species and critical habitats, and consultation with the Vermont ANR Fish and Wildlife Department's Information Manager/Natural Heritage Coordinator, were used to determine that no RTE species or necessary wildlife habitats are mapped for the project area (Appendix D).

4.10. Wild and Scenic Rivers

The Browns River is not listed on the Nationwide Rivers Inventory (NRI), which is maintained by the Rivers, Trails, and Conservation Assistance Program of the National Park Service. The NRI is a listing of more than 3,400 free-flowing river segments in the United States that are believed to possess one or more "outstandingly remarkable" natural or cultural values judged to be of more than local or regional significance. Under a 1979 Presidential Directive and related Council on Environmental Quality Procedures, all federal agencies must seek to avoid or mitigate actions that would adversely affect one or more NRI segments. The listing of NRI Rivers for the State of Vermont is available at http://www.nps.gov/ncrc/programs/rtca/nri/states/vt.html.

Regardless of the Browns River's listing status, the project will not have an effect on the river's potential for seasonal whitewater canoeing or other recreational uses.

4.11. Indirect Impacts

The Town of Westford's population stands at approximately 2,029 as of the 2010 US Census, representing a decline of 3% since 2000. The 2021 Town Plan projects slow but steady future population growth with an approximate 10% increase in Westford's population to 2,361 residents by 2050. Population figures for Project Area are not available, as the village contains only a proportion of the population of the entire Town.

As described under Section 2.3.1, the provision of wastewater capacity in the Town Center area through this project is likely to lead to the construction of multi-family dwelling units within the Town Center area, increasing the population within this designated Village Center from approximately 50 residents to 75-80 residents in a maximum case. Additional economic activity is anticipated from the use of a share of the additional capacity to support non-residential uses within the project area. However, the limited amount of new capacity created coupled with ongoing site-based limitations (i.e., water supply) will significantly limit the potential impact of the project on Town and regional population or economic growth that could have indirect impacts on natural resources.

During preparation of this EID, a request for an Act 250 jurisdictional opinion was requested from the Vermont Natural Resources Board, District 4 (Appendix F). Preliminary plans indicate that the disturbance area for the project will be +/- 9 acres, including all connections, conveyance, tankage, disposal fields, access roads, and supporting structure. The jurisdictional trigger for a municipal project is a disturbance area of 10 acres or more per 10 V.S.A. Section 6001(3)(A)(v). Given that the disturbance area for this project is currently below 10 acres, no Act 250 permit is required at this time.

5. MITIGATION OF ENVIRONMENTAL IMPACTS

The Westford Community Wastewater Disposal Project is not expected to have significant permanent adverse impacts on the environment. A summary of mitigation measures discussed above is provided in Table 5.

Table 5. Summary of Measures to Mitigate Environmental Impacts of the Westford Community Wastewater Disposal Project

Resource or Issue	Mitigation Measures
Air Quality	Operating hours for construction will be restricted to minimize impacts to nearby residents.
	Construction vehicle exhaust emissions will be controlled in accordance with Federal, state, and local regulations.
	Contract documents will require the use of water and/or calcium chloride should unreasonable dust conditions occur and will require disturbed areas to be promptly seeded and mulched.
	Odors will be mitigated by fitting vent pipes with activated carbon filters, by chemical or biological treatment for wet wells, or other best management practice as appropriate.
Surface Water	The system constructed will provide treatment as appropriate to the site and situation.
	If required by permit, water levels and water quality in monitoring wells near Indirect Discharge systems will be measured to verify system performance. Surface water monitoring in the Browns River is not anticipated but will be completed if required in the permitting of the community wastewater disposal system.
	Decommissioning of existing on-site wastewater systems may result in reductions in nutrients and pathogens entering the waters of the Browns River and its unnamed tributaries within the Project Area.
	During construction, erosion and sediment control practices will be utilized to prevent contamination of local surface waters by runoff from construction activities.
Groundwater	Proper siting, design, construction, and operation of the community wastewater disposal system will mitigate potential impacts to groundwater. If required by permit, water levels and water quality in monitoring wells near Indirect Discharge systems will be measured to verify system performance.
	Groundwater quality downgradient of existing systems decommissioned during the project will be improved through the removal of the substandard systems.
Drinking Water Supply	Drinking water quality downgradient of existing systems decommissioned during the project will be improved through the removal of the substandard system and through proper operation of the community wastewater disposal system.
	The proposed treatment system will meet all required isolation distances from drinking water sources.
Wetlands	Disturbance of wetlands will be avoided.
Floodplains	Pump stations, treatment systems, and leachfields will be located outside floodplain boundaries.
Prime Agricultural Land	A determination will be requested from the Agency of Agriculture, Food, and Markets regarding whether proposed project will or will not significantly reduce the agricultural potential of primary agricultural soils. Mitigation will be implemented if necessary.
Stream Modification	No stream crossings or modifications are expected within the Project Area. Stream crossings, if any become necessary, will be completed by directional drilling and should not affect the streams.
Wildlife Habitat	No significant wildlife habitats are present within the Project Area.
Socio-Economic Impacts	The project will provide positive socio-economic impacts to the Project Area by allowing adaptive re-use of existing buildings, limited infill growth, and stable, long-term management of needed improvements for

Resource or Issue	Mitigation Measures
	wastewater treatment in Westford's Town Common area. The project will not require an Act 250 permit application, provided that disturbance remains less than 10 acres total.
Historical / Archaeological Sites and National Landmarks	The project is not expected to affect any significant archaeological / historical resources or national landmarks. Disturbance in lawn areas will be avoided, or Phase IB testing will be completed during final design if disturbance is unavoidable in areas identified as sensitive during the Phase I evaluation. Phase IB testing will be completed at the north end of the community wastewater disposal area, as will Phase II investigations if warranted.
Threatened and Endangered Species	No threatened or endangered species are present within the Project Area.
Wild and Scenic Rivers	No Wild and Scenic Rivers are located within the Project Area.

6. SUMMARY OF AGENCY AND PUBLIC CONSULTATION

Various Federal, State, local, and regional agencies have been consulted during the planning of this community wastewater project.

6.1. Public Participation

Public participation efforts have included:

- A Wastewater Committee was formed in 2007 and began holding regular meetings.
- As part of this exploration, a comprehensive survey of wastewater needs was mailed to 60 property owners in the Project Area.
- A public meeting was held in Westford on April 30, 2008 to present the findings of the *Study of Community Wastewater Disposal Alternatives for Westford Town Center, Vermont*, and to receive comment from interested parties and members of the public.
- Regular updates of the Planning Commission and Select Board in 2019 and 2020 via public meetings, the Town Newsletter and Front Porch Forum.
- Establishment of a dedicated page on the Town's website for the Wastewater Initiative, with comprehensive information on the program (https://westfordvt.us/town-center-revitalization-projects/)
- Creation, posting, and regular updates of a Frequently Asked Questions sheet on the Town Center Revitalization Project page.

Additional public informational meetings are expected in the future, both to provide ongoing progress updates regarding implementation of the Westford Community Wastewater Disposal Project, and in association with future bond votes that will be necessary for the support of the project.

6.2. Results of Public Consultation

The property owner survey completed in 2008 indicated that a broad range of opinion remained about what level of treatment and management service should be provided in the Westford Town Center area.

At the April 2008 public meeting, residents and stakeholders expressed interest in improved wastewater management, and substantial concerns about the cost of any wastewater management project.

The Planning Commission and its consultants have thus approached the development of the Westford Community Wastewater Disposal Project in a careful, stepwise fashion, using check-in presentations and meetings as the preferred method of making decisions about the scope and direction of the project. Likewise, funding for program development has been requested and awarded in very small, stepwise increments—ensuring that the Selectboard remains frequently informed about the project's progress.

6.3. Agency Consultation

Discussions with the Agency of Natural Resources Indirect Discharge Section regarding hydrogeologic investigations and the likelihood of requirements for site specific monitoring indicated that for systems with design flows of less than 30,000 gpd and indirect discharges to the Browns River, detailed groundwater quality testing would not be a likely permit requirement. However, the submittal of a Capacity Application for the project was encouraged and was applied for and received in 2019.

Discussions with the Agency of Natural Resources Water Infrastructure Division resulted in confirmation the Westford Community Wastewater Disposal System Preliminary Engineering Report (PER) submitted on December 29, 2020 was acceptable. The PER will be approved as part of the facilities plan approval, following submittal of complete environmental information documents that address all required environmental considerations.

Correspondence with the State of Vermont's Historic Preservation Officer is pending, but it is anticipated that the project will not affect historic or archaeologically significant properties.

Correspondence with the US Fish and Wildlife Service and Vermont Fish and Wildlife Department's Biologist / Information Manager indicated that no rare, threatened, and endangered species; necessary wildlife habitat; or significant natural communities would be affected by the project.

Correspondence with the Vermont Environmental Board. District 4 Coordinator indicated that since the disturbance area for the project is below the 10-acre jurisdictional trigger for a municipal project, no Act 250 permit is required.

6.4. List of State of Vermont Agencies Consulted

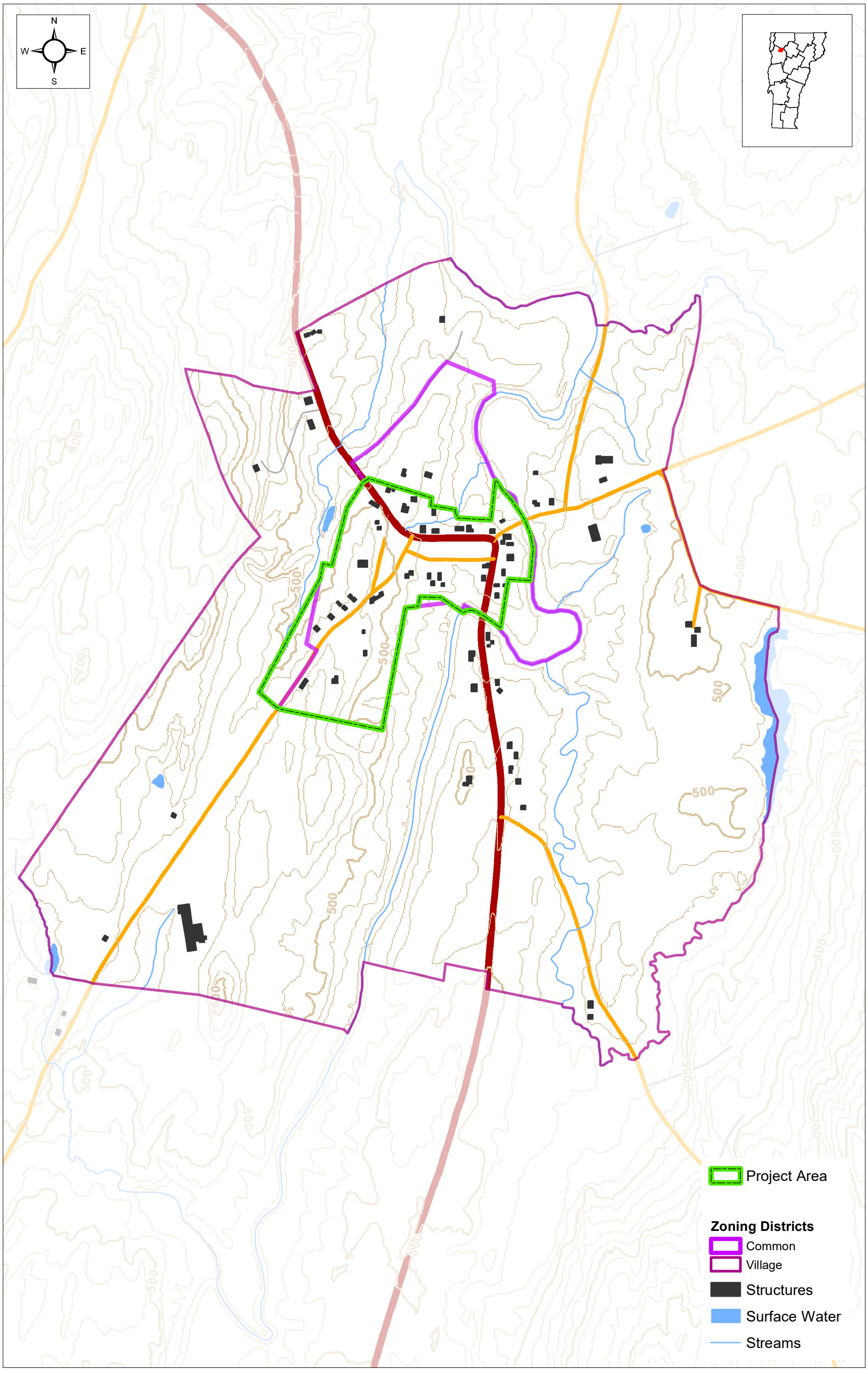
Agency	Contact
VANR, Drinking Water and Groundwater Protection Division	Ernest Christiansen, Manager Mary Clark, Indirect Discharge Program (retired) Bryan Harrington, Indirect Discharge Program, Section Chief Jessanne Wyman, Regional Engineer
VANR, Water Infrastructure Division (fmr. Facilities Engineering Division)	Lynnette Claudon, PE, Chief Pollution Control Design Engineer Jeff Fehrs, PE, Engineering Program Manager, CWSRF Program Manager
VANR, Department of Fish and Wildlife	Everett Marshall, Information Manager / Natural Heritage Coordinator
Vermont Agency of Agriculture, Food, and Markets	[to be provided during final design if force main and disposal field adjustments cannot be made to eliminate disturbance of agricultural soils]
Vermont Division for Historic Preservation	Scott Dillon, Historic Preservation Senior Review Coordinator [pending] Hartgen - Thomas R. Jamison, PhD, RPA #16566
Vermont Natural Resources Board, District 4	Rachel Lomonaco, District 4 Coordinator

6.5. List of Local and Regional Agencies and Groups Consulted

Agency	Contact
Town of Westford, Vermont	Selectboard Planning Commission Wastewater Committee Town Common Committee
Chittenden County Regional Planning Commission	Taylor Newton, Senior Planner

7. PREPARER'S SIGNATURE

8. FIGURES

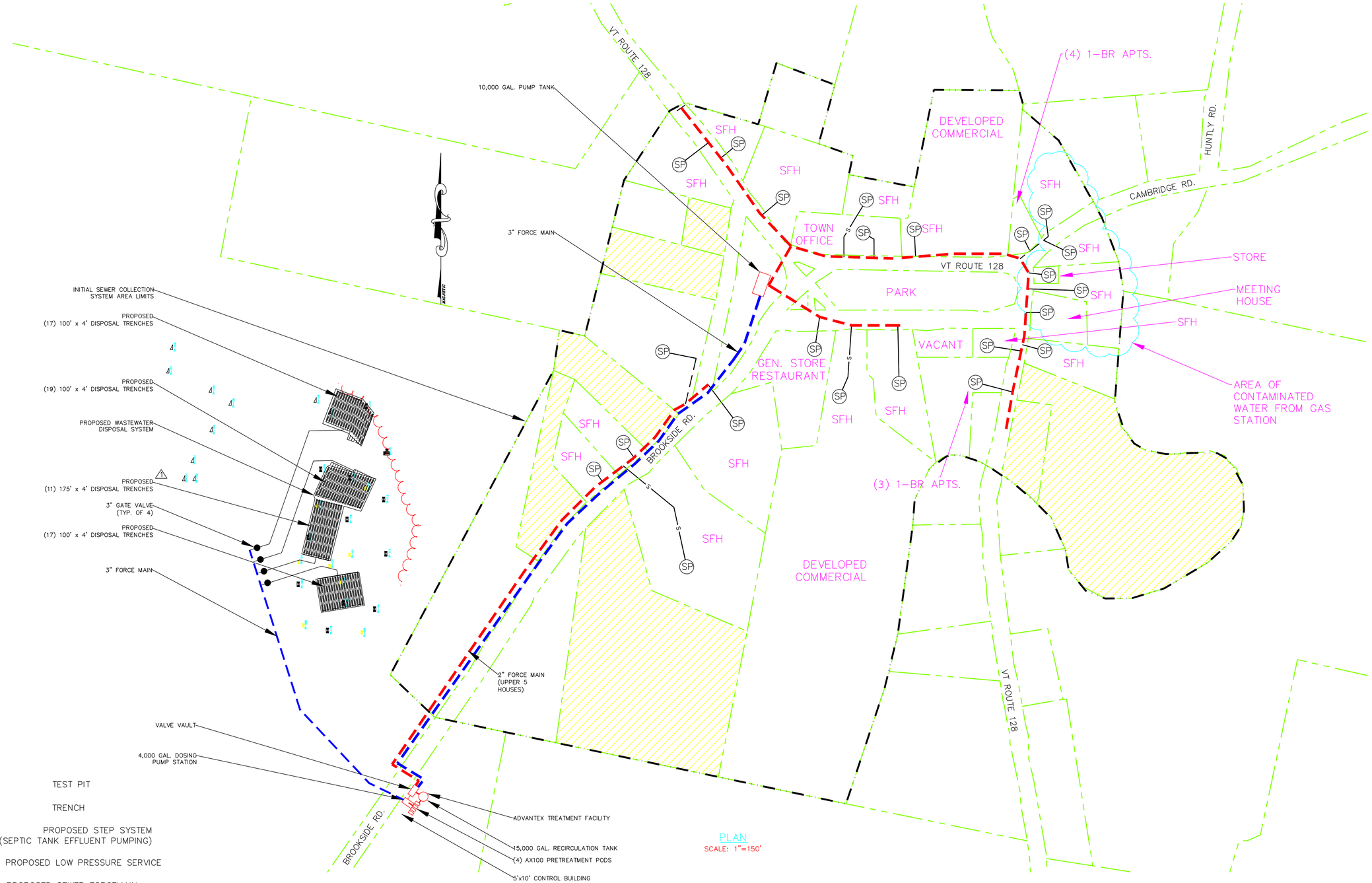


O:\PROJ-19\WRM\19-161 Westford Comm WW System\Data\GISData\Map_Documents\Figure1a_Westford Project Area 2020.mxd 12/03/2020 anm

FIGURE 1: LOCATION MAP AND PROJECT AREA
Westford Community Wastewater Disposal System
Westford, Vermont

0 0.25 0.5 Miles
Scale

STONE ENVIRONMENTAL



PLAN
SCALE: 1"=150'

DRAFT

REV.	DATE	DESCRIPTION	BY
1	3/20/19	REVISED DISPOSAL FIELD LAYOUT	BPC

1438 SOUTH BROWNELL ROAD
WILLISTON, VERMONT 05495
PHONE: (802)862-5590
FAX: (802)862-7598

GREEN MOUNTAIN ENGINEERING
CIVIL
WATER
WASTEWATER

DRAWING TITLE: ALTERNATIVE 4 COMMUNITY WASTEWATER DISPOSAL SYSTEM

PROJECT: WESTFORD WASTEWATER PRELIMINARY ENGINEERING REPORT

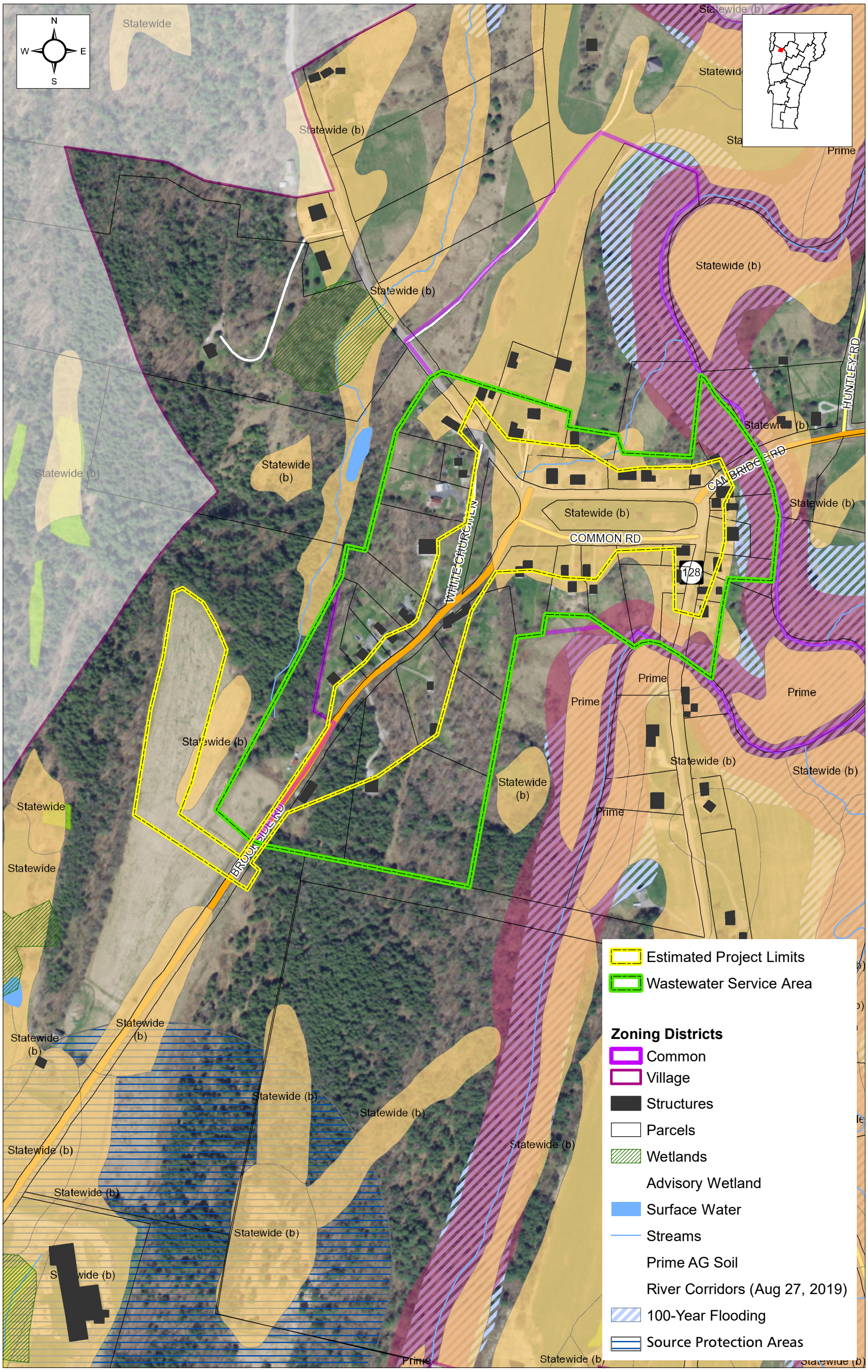
CLIENT: TOWN OF WESTFORD, VERMONT

DESIGNED: BMW	PLOT DATE: 11/11/20
DRAWN: JJB	SCALE: 1" = 150'
CHECKED: AH	DATE: NOV. 2020

PROJECT NO. 28-006

FIGURE NO. 6

FILE: S:\GME PROJECT FILES\28-000\28-006 WESTFORD STUDY UPDATE\STUDY UPDATE DRAWING.DWG



O:\PROJ-19\WRM\19-161 Westford Comm WW System\Data\GISData\Map_Documents\Figure2_Westford Enviro Sensitivity Map - 2020.mxd 11/12/2020 anm

FIGURE 3: ENVIRONMENTALLY SENSITIVE AREAS

Westford Community Wastewater Disposal System
Westford, Vermont

Sources: Hydrography, VCGI and Stone, 2020; Parcel Boundaries, VCGI, 2020; Wetlands, River Corridors, 100-Year Flooding, Deer Wintering Areas, Prime Ag Soils - ANR map services.

0 0.25 0.5 Miles
Scale

STONE ENVIRONMENTAL

APPENDICES

APPENDIX A: RECEIVING WATER AND ASSIMILATIVE CAPACITY DETERMINATIONS

STONE ENVIRONMENTAL

535 Stone Cutters Way / Montpelier / VT / 05602 / USA
802.229.4541 / info@stone-env.com / www.stone-env.com

January 10, 2019

Melissa Manka, Planning Coordinator
Town of Westford
1713 Route 128
Westford, VT 05494
Submitted via e-mail to planner@westfordvt.us

Stone Project No. 18-021
Subject: Preliminary Aquatic Permitting Criteria Compliance Assessment, Jackson Farm Community Wastewater Site, Westford, Vermont

Dear Melissa,

Stone Environmental, Inc. (Stone) is pleased to present a preliminary evaluation of the capacity of the Browns River to assimilate renovated effluent from the proposed 12,600 gallon per day (GPD) community wastewater disposal field on the Jackson Farm property while meeting the Aquatic Permitting Criteria (APC) under Vermont's Indirect Discharge Rules. This order-of-magnitude assessment determined that the design flow proposed can be treated and dispersed while meeting the nutrient-based APC for nitrate-nitrogen (nitrate-N) and total dissolved phosphorus (TDP) in the Browns River.

We recommend that the Town and consulting team meet with Indirect Discharge Program staff to review work completed to date and the results of this assessment, with the goal of obtaining concurrence that the work is sufficient to allow preliminary approval of a community alternative wastewater system. This approval is required in order for the Town to apply for Neighborhood Development Area designation with the Agency of Commerce and Community Development. We also recommend that the Town pursue development of a Capacity Application under the Indirect Discharge Rules.

1. Determination of Receiving Stream and Points of Compliance

This task was completed in coordination with Green Mountain Engineering, Vermont Department of Environmental Conservation (DEC) staff, and the Town. A site meeting was held on September 7, 2018 to review background information and walk over the property. The parties attending were:

- Melissa Manka, Town of Westford
- Aaron Moore and Jim Deshler, Vermont DEC
- Kevin Camara, PE, Green Mountain Engineering
- Amy Macrellis, Stone Environmental, Inc.

Topics of discussion during this meeting and site walk included the history and results of monitoring, testing, and preliminary design previously conducted at the site; an overview of the proposed community wastewater

system; and determination of whether the drainage channel adjacent to the proposed disposal field would be suitable for biological monitoring or use as a point of compliance for determining compliance with the APC. Following the site meeting, Aaron Moore confirmed that the biological compliance point for the project would be the Browns River. A precise compliance point was not established due to access and timing; the confluence of the drainage running from south to north away from the proposed leachfield and the Browns River is north of VT Route 128 and on private property.

Following determination of the receiving stream and estimated point of compliance, Stone conducted a preliminary assessment of the proposed community leachfield's potential for compliance with the APC for nitrate-N and TDP, using the Modified Site Specific Compliance (§14-908) method for demonstration of compliance. This method was chosen out of an abundance of caution as early in the determination process, the receiving stream, and thus the stream's low median monthly flow, were not known. This method "may be used to demonstrate compliance ...for septic tank/leachfield systems with capacities of 30,000 gpd or less that discharge to streams using default values for concentrations of in-ground effluent parameters" (§14-908(a)).

2. Watershed Delineation and Existing Data Review

Stone delineated the watershed area of the Browns River as related to the likely point of compliance under the Indirect Discharge Rules, based on the best existing topographic data and using Geographic Information Systems (GIS) spatial analysis tools (Figure 1). We collected and reviewed available in-stream water quality monitoring data for the Browns River, particularly as those data relate to the APC for nutrients (nitrate-N and TDP). We attempted to review existing Indirect Discharge wastewater permitting records for properties in the up-stream portions of the watershed, but no permitted properties exist in the area.

In-stream water quality data are available for the Browns River upstream of the proposed compliance point. Under the guidance of Kevin Sherman, an instructor at the Westford Elementary School, 5th and 6th-grade science students have been performing water quality testing and biological monitoring activities just down-stream of the Westford Covered Bridge (near the intersection of Cambridge Rd. and Huntley Rd.) since approximately 1994. Compilation of these records is still in process. Chemical monitoring data collected by the students in the spring of 2018 indicated excellent water quality in the Browns River, with nitrate-N and total phosphorus concentrations typical of Vermont background conditions. Samples collected by the students in the fall of 2018 were taken after several days of rain, and showed slightly elevated turbidity and elevated nutrient concentrations, as might be expected following a series of substantial rain events.

Finally, our review of existing data showed that stream flow in the Browns River is not gaged. Additional literature review and data collection were needed to complete an assessment of the proposed system's potential for compliance with the APCs, as described below.

3. Browns River Low Median Monthly Flow (LMMF) Evaluation

Stone reviewed electronic datasets available from the US Geological Service and others, to select the most appropriate low flow conditions for the Browns River for use in the mass balance calculations.

Our primary data source was daily stream discharge records downloaded from the United States Geologic Survey's (USGS) National Water Information System website at http://waterdata.usgs.gov/nwis/sw. Stream flow records were collected fusing the following screening criteria:

- Only watersheds located in eastern New York, Vermont, New Hampshire, and inland Maine were considered.
- At least five years of daily stream discharge values were available for the watershed (minimum of 1,825 records).
- The watershed had an area of approximately 50 square miles (32,000 acres) (query range 45-55 square miles).
- The average slope of the watershed was within 3% of the Browns River's mean slope (calculated at 3.5%, given a watershed length of 17.9 miles and elevation change of 3,308 feet).

A total of nine watersheds were identified using these initial screening criteria (Table 1), and the full stream flow datasets were downloaded for analysis. For each dataset, all daily stream flow values for each full month were grouped together, and a monthly median was calculated (so, for example, a median monthly flow was calculated for all January values regardless of year). Once median stream flow values were calculated for each month, the minimum or low monthly median flow was selected for each stream and is reported in Table 1. This LMMF value was divided by each watershed's area to calculate a 'unitized' LMMF.

During the calculation process, five of the original nine watersheds were found to be unusable (Table 1). The Peabody River drains the eastern slopes of Mt. Washington and the western slopes of Carter Dome and Wildcat Mountain, and most of the watershed does not contain conditions representative of those in the Browns River watershed. The stream gage on Wilson Stream in East Wilton, Maine is located just below an impoundment. It was not clear how much flow is controlled by the impoundment, so the watershed was removed from consideration. Records for three additional watersheds meeting the initial screening criteria did not contain a full year of observations collected within the last 50 years (1968 or later).

The four remaining watersheds are located in Vermont and eastern New York. These watersheds, with areas ranging from 50 mi^2 to 54 mi^2, have unitized LMMF values ranging between 0.09 cfs/mi^2 and 1.04 cfs/mi^2 (Table 1). We recommend that the average unitized LMMF for the four identified watersheds (0.51 cfs/mi^2), which results in a LMMF of 25.5 cfs for the Browns River at the estimated compliance location north of the Westford Town Center, be used to complete the mass balance compliance calculations.

Table 1. Summary of Watershed Characteristics and Stream Flows.

USGS ID	Stream Name and Location	Period of Record	Watershed Area (mi^2)	Watershed Slope	LMMF (cfs)	Unitized LMMF (cfs/mi^2)
Reference Watershed						
n/a	Browns River north of Westford Town Center	n/a	50	0.035	25.5	0.51
Watersheds with Acceptable Data						
04276842	Putnam Creek East of Crown Point Center, NY	1990-2018	52	0.026	8.6	0.17
04271815	Little Chazy River near Chazy, NY	1990-2018	50	0.013	4.6	0.09
01133000	East Branch Passumpsic River near East Haven, VT	1938-2018	54	0.047	39.5	0.73
04281500	East Creek at Rutland, VT	1940-1977	51	0.064	53	1.04
Watersheds Evaluated With Unusable Data						
01054114	Peabody River at Gorham, New Hampshire[a]	2012-2018	46	0.088	n/c	n/c
01047730	Wilson Stream at East Wilton, Maine[b]	1977-1984	46	n/c	n/c	n/c
04286500	Dog River at Northfield, Vermont[c]	1909-1943	52	n/c	n/c	n/c
04274500	Black Brook at Black Brook, New York[c]	1924-1969	49	n/c	n/c	n/c
04268600	E. Branch St. Regis River Near Meacham Lake, New York[c]	1958-1968	52	n/c	n/c	n/c
Recommended Estimated LMMF for Browns River[d]					**25.5**	**0.51**

Sources: USGS, 2018; Stone Env. analysis, 2018.

Notes: mi^2 = square miles; cfs = cubic feet per second; n/a = not applicable; n/c = not calculated.

[a] Much of the watershed is steeply sloping. Includes Mt. Washington eastern slopes, Carter Dome, Wildcat Mountain. Not representative of Browns River watershed conditions.

[b] Gage is located below an impoundment - not representative of Browns River conditions.

[c] Period of record does not include any data in last 50 years, calculations not completed.

[d] The recommended unitized low median monthly flow (LMMF) was calculated as the average for the four watersheds with acceptable flow data.

init: 11/26/18, anm

The LMMF of 25.5 cfs proposed for the Browns River translates to a daily flow value of 16,473,000 GPD. Given the Browns River's large watershed area and the correspondingly large LMMF, the Dilution method (§14-902 of the IDRs) may also be used to determine compliance with the APCs. It is a simpler method, and is allowed for septic tank/leachfield systems with design capacity of 20,000 gpd or less that indirectly discharge to streams. Under this method, a system is presumed to meet the APCs and the Vermont Water Quality Standards "if the ratio of the low median monthly flow of the receiving stream to the design capacity is 120:1 or greater" (§14-902(b)). The ratio of the Browns River LMMF to the proposed indirect discharge is 1,307:1 – substantially greater than the required 120:1 ratio.

4. In-Stream Water Quality Sampling

Surface water samples were collected at one location in the Browns River, as near as possible to the compliance location identified by Vermont DEC without requiring access to private property. The location was on the east bank of the river off Huntley Road, south of the intersection with Drinkwine Road (Figure 2). Samples were collected in accordance with Section 14-910(2)(A) of the Indirect Discharge Rules with a deviation on the number of samples collected. This late in the season, it was not possible to collect enough samples to fully satisfy the requirements of this section. Meeting these requirements will require collection of at least 10 surface water samples within a year's time, and those samples must be collected according to a Quality Assurance / Quality Control (QA/QC) Plan approved by Indirect Discharge Program staff.

Samples were collected on October 10 and October 26, 2018. Care was taken to avoid sampling surface water within 24 hours of precipitation. All samples were collected in accordance with Stone's Standard Operating Procedures for surface water sampling. Temperature, pH, and conductivity were measured in the field, and each sample was analyzed for chloride, nitrate-nitrogen (nitrate-N), and total dissolved phosphorus (TDP) (collected in duplicate) at the Endyne, Inc. laboratory facility in Williston, Vermont. Results of the surface water sampling are presented in Table 2.

Table 2. Surface Water Sampling Results, Browns River Above Compliance Point

Date	Temperature (deg. C)	pH	Conductivity (uS)	Chloride (mg/L)	Nitrate-N (mg/L)	TDP (mg/L)	Total P (mg/L)
10/10/2018	18.4	7.87	179.90	12	<0.20	0.011	
10/10/2018 - duplicate						0.010	
10/26/2018	4.3	7.62	183.90	8.7	<0.20	0.012	0.014
10/26/2018 - duplicate						0.015	0.016

Source: Stone Environmental assessment and field notes and Endyne Inc. analytical results, 2018

Date/init: 11/29/2018 anm

5. Aquatic Permitting Criteria Preliminary Compliance Assessment

The potential compliance of the proposed indirect discharge system with the Aquatic Permitting Criteria was evaluated per §14-911 and §14-912 of the Indirect Discharge Rules under the proposed 12,600 gpd design flow. The details of each analysis, and the analysis results, are described below for nitrate-N and TDP.

5.1.1 Soil renovated effluent data

Soil renovated effluent results for nitrate-N and TDP in the downgradient groundwater are not available, so default concentrations for each of the in-ground effluent quality parameters listed in Table 5 of the Indirect Discharge Rules were applied, consistent with the Modified Site Specific Compliance Method (§14-908) of

the IDRs. The default concentration for nitrate-N is 60 mg/L, while the default concentration for TDP is 0.14 mg/L.

5.1.2 System Discharge Flows

The proposed design flow of 12,600 gpd was utilized in the mass balance compliance calculations.

5.1.3 In-stream water quality data

Given the limited number of in-stream water quality results available at this stage, the data were not evaluated in accordance with §14-911 of the IDRs. Instead, the average of the two available surface water results were utilized as a proxy for the 95% confidence values, which would normally be used as the basis for calculation and determination of compliance with the APCs. The average in-stream values of 0.20 mg/L for nitrate-N and 0.012 mg/L for TDP were utilized as the existing in-stream receiving water concentrations for purposes of the mass balance calculations (Table 1).

In addition to the proposed indirect discharge meeting the Aquatic Permitting Criteria in the IDRs, water quality in the stream must also meet the relevant Vermont Water Quality Standards[1] (WQS). The standard for nitrate-N in Class B(2) waters is "not to exceed 5.0 mg/l as NO_3-N at flows exceeding low median monthly flows". The applicable WQS for total phosphorus is not clear, as the Browns River is a medium-gradient stream and a cold-water fishery. Table 2 in the WQS indicates that for Class B(2) waters, the nutrient criteria for total phosphorus in medium, high-gradient streams is 0.015 mg/L, while in warm-water, medium-gradient streams it is 0.027 mg/L. In all cases, water in the Browns River above the proposed compliance point, as sampled in October 2018, appears to be in compliance with the WQS for nutrients.

5.1.4 Stream Flow Data

As described in Section 2.1, daily stream flow records were collected for nine watersheds with watershed areas and other characteristics reasonably similar to those of the Browns River. An estimated unitized LMMF of 0.51 cubic feet per second per square mile of watershed area (cfs/mi^2), resulting in a LMMF of 25.5 cfs, was applied in the mass balance calculations.

5.1.5 Compliance with Aquatic Permitting Criteria

Compliance with the Aquatic Permitting Criteria (APC) for nitrate-N and TDP was evaluated in accordance with §14-912 of the IDRs.

[1] https://dec.vermont.gov/sites/dec/files/documents/wsmd_water_quality_standards_2016.pdf

The Aquatic Permitting Criteria for nitrate-N is that "indirect discharge will not raise the in-stream concentration of nitrate nitrogen at the point of compliance at the designated stream flow above 2.0 mg/L. The 2.0 mg/L limitation must include the background concentration of nitrate nitrogen and is applicable to all upland waters (§14-701(b)(4))". The mass balance compliance calculations for nitrate-N are shown in Table 2. The calculation completed for the proposed design flow of 12,600 gpd results in a calculated in-stream nitrate-N concentration of 0.25 mg/L, which is 1.75 mg/L below the APC.

Table 3. Aquatic Permitting Criteria Compliance Calculations, Nitrate-Nitrogen.

Mass Balance Equation for Calculating Resulting In-Stream Concentrations (per §14-912):				
$\frac{[E_c \times E_q + D_c \times D_q]}{(E_q + D_q)}$ = Resulting in-stream concentration, where:				
E_c = existing in-stream water concentration (estimated based on October 2018 sampling, mg/L)				
E_q = Appropriate stream flow at point of compliance, for annual release rate (gal/day)				
D_c = In-ground effluent concentration (estimated per §14-908, Table 5 in the IDRs), mg/L)				
D_q = Proposed discharge flow (design capacity, gal/day)				
Proposed Permitted Capacity Wastewater Flow Scenario:				
Existing in-stream receiving water concentration (E_c)	0.20	mg/L		
Appropriate stream flow (E_q)	16,473,000	gal/day or	25.5	ft^3/sec
In-ground effluent concentration (D_c)	60	mg/L		
Proposed discharge flow (D_q)	12,600	gal/day or	0.020	ft^3/sec
Resulting In-stream Concentration at 12,600 gal/day =	0.25	mg/L		
APC Standard, <2.0 mg/L downstream, including background =	2.0	mg/L		

Source: Stone Environmental assessment and field notes and Endyne Inc. analytical results, 2018

Date/init: 11/27/2018 anm

The Aquatic Permitting Criteria for TDP is that "the indirect discharge will not increase the in-stream concentration of Total Dissolved Phosphorus at the point of compliance at the designated stream flow by more than 0.001 mg/L above existing background concentration. The applicant shall also demonstrate the indirect discharge will not increase the in-stream Total Phosphorus above any limit established in the Water Quality Standards (§14-701(b)(1))". The mass balance compliance calculations for TDP are shown on Table 3. The calculation completed for the proposed design flow of 12,600 gpd results in a calculated in-stream TDP concentration of 0.011 mg/L—essentially no change from the existing in-stream receiving water concentration, and in compliance with both the APC and the WQS.

Table 4. Aquatic Permitting Criteria Compliance Calculations, Total Dissolved Phosphorus.

Mass Balance Equation for Calculating Resulting In-Stream Concentrations (per §14-912):

$$\frac{[E_c \times E_q + D_c \times D_q]}{(E_q + D_q)}$$ = Resulting In-stream concentration, where:

E_c = existing in-stream water concentration (estimated based on October 2018 sampling, mg/L)

E_q = Appropriate stream flow at point of compliance, for annual release rate (gal/day)

D_c = In-ground effluent concentration (estimated per §14-908, Table 5 in the IDRs), mg/L)

D_q = Proposed discharge flow (design capacity, gal/day)

Proposed Permitted Capacity Wastewater Flow Scenario:

Existing in-stream receiving water concentration (E_c)	0.012	mg/L	
Appropriate stream flow (E_q)	16,473,000	gal/day or	25.5 ft^3/sec
In-ground effluent concentration, (Table 5, §14-908) (D_c)	0.140	mg/L	
Proposed discharge flow (D_q)	12,600	gal/day or	0.020 ft^3/sec
Resulting In-stream Concentration at 12,600 gal/day =	0.012	mg/L	
APC Standard, <0.001 mg/L increase from upstream =	0.013	mg/L	

Source: Stone Environmental assessment and field notes and Endyne Inc. analytical results, 2018

Date/init: 11/29/2018 anm

Thank you for the opportunity to work with the Town to advance this important project. We stand ready to answer any questions you may have about our work and look forward to meeting with Green Mountain Engineering and the Vermont Indirect Discharge Program staff on your behalf.

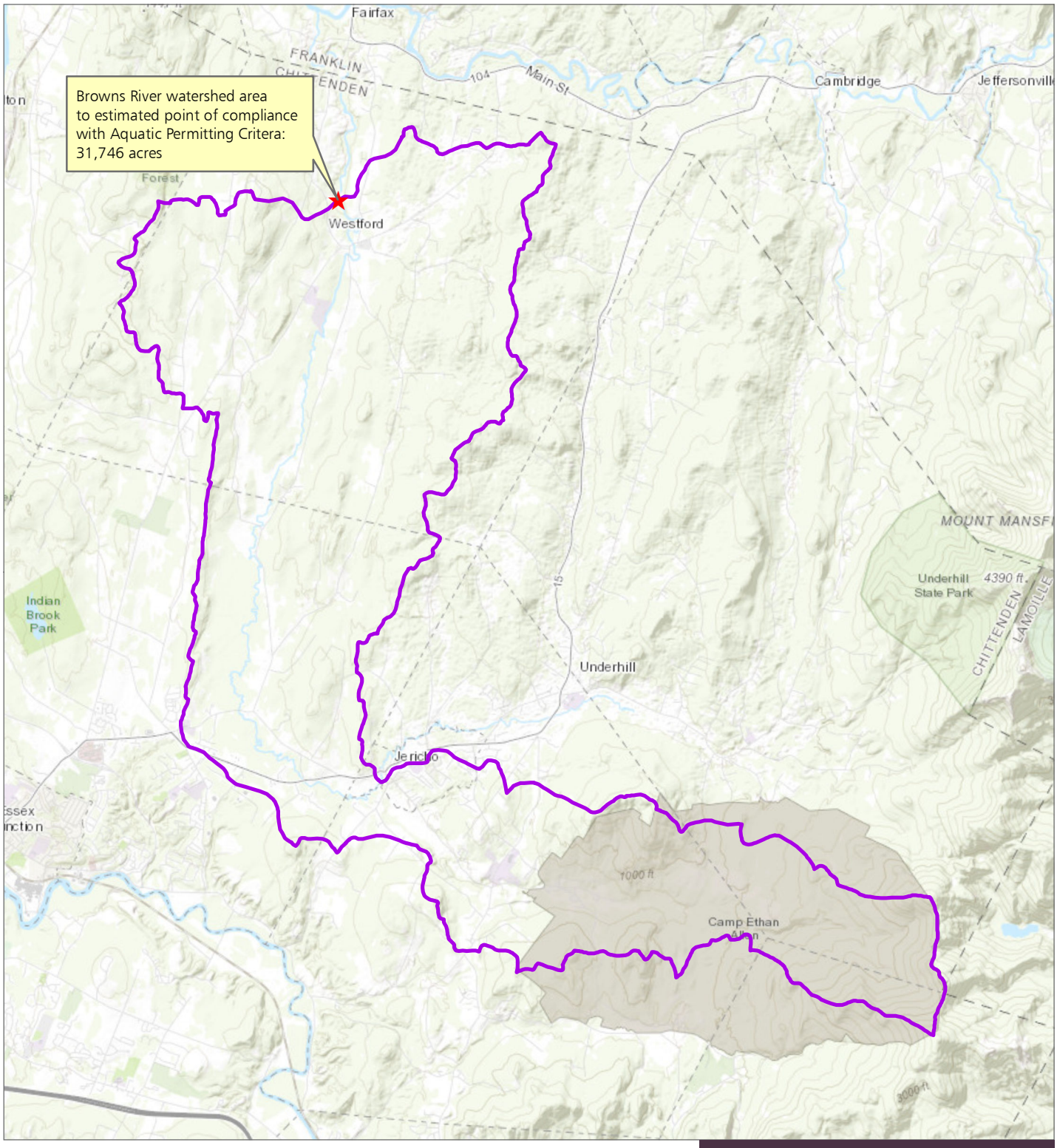
Sincerely,

Amy Macrellis

Amy Macrellis
Senior Water Quality Specialist
Direct Phone / 802.229.1884
Mobile / 802.272.8772
E-Mail / amacrellis@stone-env.com

cc: Alan Huizenga, Green Mountain Engineering
Mary Clark and Bryan Harrington, Vermont DEC Indirect Discharge Program

O:\PROJ-18\WRM\18-021 Westford WW APC Assessment\Report\18-021 Westford Comm WW IDP - APC compliance prelim eval - 2019 01 10.docx



LEGEND

- Compliance Point (estimated)
- Browns River Watershed to Compliance Point

N

0 2,400 4,800

Feet

Notes: Watershed boundary to compliance point delineated from VHD WBD12 boundary for

Sources: Watershed boundary: Vermont Hydrography Dataset (VHD), NHDPlus v2, Stone. Topo graphic base map: Esri World Imagery

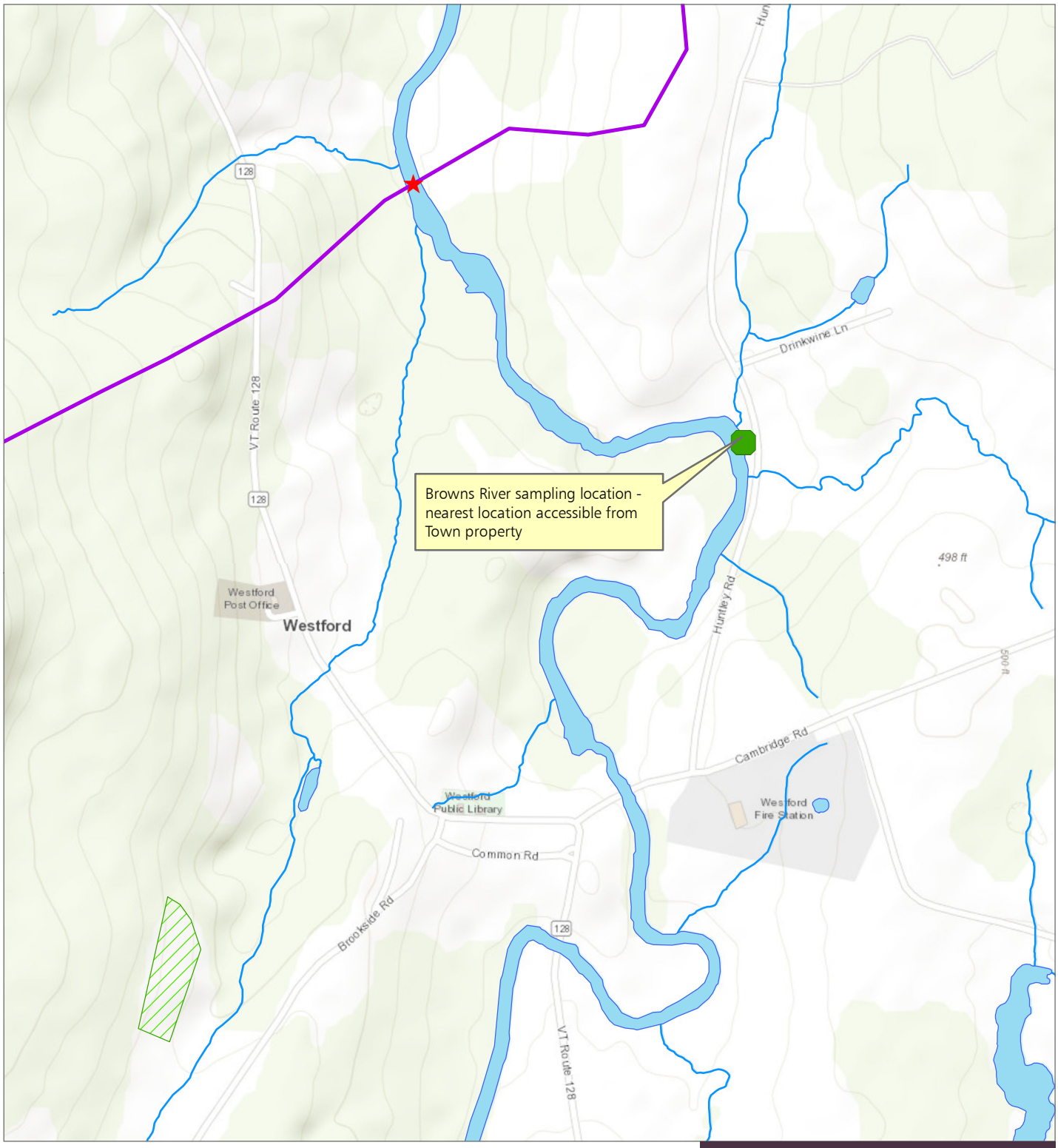
Path: O:\PROJ-18\WRM\18-021 Westford WW APC Assessment\GIS\Westford_BrownsRiverCompliancePoint.mxd Saved: 11/16/2018 by AmyM

Figure 1, Browns River Watershed to Estimated Compliance Point

Preliminary Aquatic Permitting Criteria Compliance Assessment

Prepared for the Town of Westford

STONE ENVIRONMENTAL



LEGEND

- Sampling Location
- Compliance Point (estimated)
- Town Center Community WW Disposal Area
- Browns River Watershed to Compliance Point

N

0 190 380

Feet

Figure 2, Browns River, Surface Water Sampling Location

Preliminary Aquatic Permitting Criteria Compliance Assessment

Prepared for the Town of Westford

STONE ENVIRONMENTAL

Sources: Watershed boundary: Vermont Hydrography Dataset (VHD), NHDPlus v2, Stone. Topo graphic base map: Esri World Imagery

Path: O:\PROJ-18\WRM\18-021 Westford WW APC Assessment\GIS\Westford_BrownsRiverSamplingLocation.mxd Saved: 11/29/2018 by AmyM

Notes: Watershed boundary to compliance point delineated from VHD WBD12 boundary for

VERMONT

Vermont Department of Environmental Conservation
Drinking Water and Groundwater Protection Division
One National Life Drive - Main 2
Montpelier, VT 05620-3521
www.vermontdrinkingwater.org

Agency of Natural Resources

March 25, 2019

Melissa Manka, Planning Coordinator
Town of Westford
1713 VT Route 128
Westford, VT 05494

RE: Capacity Determination and Aquatic Permitting Criteria Assessment
Jackson Farm Site, Westford, Vermont

Dear Melissa,

I am writing in response to the recommendation by Stone Environmental that the Town of Westford obtain a Capacity Determination for a New Indirect Discharge of Sewage in accordance with Subsection 14-402 of the Indirect Discharge Rules for the Jackson Farm site in Westford, Vermont. The Indirect Discharge Program has reviewed the soil investigations performed at the site by Donald Hamlin Consulting Engineers and later by Stone Environmental, the desktop hydraulic capacity analysis and evaluation of aquatic permitting criteria prepared by Stone Environmental, and the proposed wastewater site plan submitted by Green Mountain Engineering. Indirect Discharge Program personnel have also visited the site on a couple of occasions and looked at the soils in numerous test pits.

The Indirect Discharge Program concurs that the proposed wastewater disposal area, referred to as Zone 3, at the Jackson Farm can accommodate up to 12,600 gallons per day of treated sewage at a loading rate of 0.9 gallons per day per square foot of trench area for a 100% dual alternation system. In fact, based on the Green Mountain Engineering March 20, 2019 revised site plan, the disposal capacity may be slightly higher than the 12,600 gallons per day indicated the Stone Environmental reports. However, due to the close proximity of poor soils at test pit TP-120, the final design of the largest leachfield in the disposal system may need to be refined to meet the requirements of the Indirect Discharge Rules for disposal capacity of at least 12,600 gallons per day.

During a September 7, 2018 site visit, the Agency's aquatic biologists determined that the small unnamed drainage channel downgradient of the proposed disposal site is not suitable for biological monitoring. Therefore, the point of compliance for the proposed discharge will be the Browns River where the small unnamed drainage enters the river.

The Indirect Discharge Program concurs with the preliminary compliance assessment in the January 10, 2019 Stone Environmental report that the proposed discharge will meet the Aquatic Permitting Criteria of the Indirect Discharge Rules in the Browns River. By virtue of the significant dilution provided by the Browns River, demonstration of compliance with the Aquatic Permitting Criteria is also satisfied using the Dilution Method specified in 14-902 of the Indirect Discharge Rules. As such, baseline sampling of the Browns River is not required.

The Indirect Discharge Program intends to start the process of revising the Indirect Discharge Rules in the next few months. The proposed wastewater disposal system will be subject to the Rules that are in effect at the time an application for an indirect discharge permit is submitted.

If you have any questions, please contact me at bryan.harrington@vermont.gov or by phone at (802) 505-0972.

Sincerely,

Bryan Harrington
Indirect Discharge Program

CC: Amy Macrellis, Stone Environmental
Alan Huizenga and Kevin Camera, Green Mountain Engineering
Mary Clark, Indirect Discharge Program

APPENDIX B: WETLANDS INVENTORIES

LEGEND

- VT Parcels
- Sampling Point 1 (Non-Wetland)
- Area Delineated

Streams (5K)

- Intermittent
- Perennial
- Unassigned

Rivers (5K)

N

0 100 200

Feet

Wetland Delineation Map

Westford Town Center Community Wastewater System

Prepared for:

Town of Westford

STONE ENVIRONMENTAL

Source: Esri World Imagery

Path: O:\PROJ-19\WRM\P19-161 Westford Comm WW System\GIS\Intermediate\P19-161 Wetland_Delineation_Template_Map.aprx Site Location Map Portrait Exported: 9/25/2020 1:51 PM by hkominami

Notes: Area delineated approximates the areas that may be impacted by construction activities within these parcels.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: P19-161 / Westford Town Center Community Wastewater System City/County: Westford / Chittenden Sampling Date: 9/11/20

Applicant/Owner: Westford Town State: VT Sampling Point: 1

Investigator(s): H. Kominami Section, Township, Range: Westford

Landform (hillslope, terrace, etc.): toeslope of concave linear hillslope Local relief (concave, convex, none): concave Slope (%): 4

Subregion (LRR or MLRA): R Lat: 44.6078549°N Long: 73.0173288°W Datum: WGS 1984

Soil Map Unit Name: Munson and Belgrade Silt Loams, 12 - 25% sloples (MuD) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No X	

Remarks: (Explain alternative procedures here or in a separate report.)

An existing hayfield was evaluated for the presence/absence of wetlands using the ACOE's indicators-based approach to wetland delineation. Analysis of observed precipitation during July and August revealed that climatic and hydrological conditions are close to typical for the time of year. The VT ANR Atlas indicates that there's a stream in the hay field in the vicinity of sampling point 1, however, on site investigation showed that not to be the case.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: 1

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Phalaris arundinacea	95	Y	FACW
2. Taraxacum officinale	3	N	FACU
3. Vicia sativa	2	N	FACU
4. Ranunculus repens	2	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	102 = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ✔ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks: (Include photo numbers here or on a separate sheet.)

The plant community passes the rapid test for hydrophytic vegetation and is therefore considered hydrophytic.

SOIL Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	100	-	-	-	-	SIL	
6-24	10YR 4/2	97	5YR 4/6	1	C	M	SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ☐ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ☐ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ☐ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Dug a pit down to 18" and then augered down to 24". The representative observation point (i.e. sampling point 1) is in a swale within the hayfield where water collects and concentrates. According to VT ANR atlas, there appears to be a stream where the swale is but there was no perennial or even intermittent stream observed during my investigation. Surrounding areas were also investigated by augering and examining soil properties and observing plants present. Investigation revealed surrounding areas to be drier than sampling point 1.

APPENDIX C: VERMONT AGENCY OF AGRICULTURE, FOOD, AND MARKETS CORRESPONDENCE

To be provided if disturbance of agricultural soils cannot be avoided during final design.

APPENDIX D: US FISH AND WILDLIFE SERVICE AND VERMONT FISH AND WILDLIFE CORRESPONDENCE

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: December 03, 2020
Consultation Code: 05E1NE00-2021-SLI-0601
Event Code: 05E1NE00-2021-E-01819
Project Name: Westford Community Wastewater Disposal System

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2021-SLI-0601

Event Code: 05E1NE00-2021-E-01819

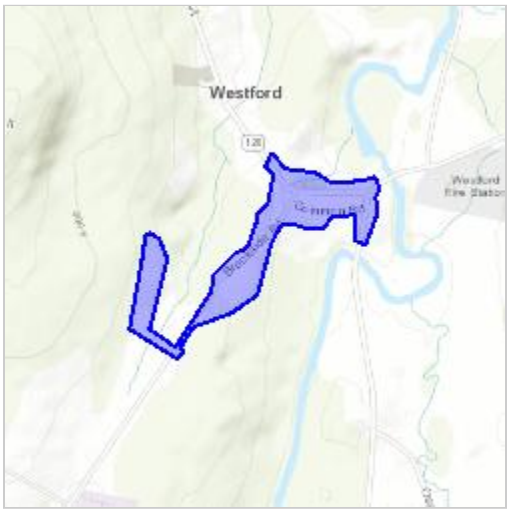
Project Name: Westford Community Wastewater Disposal System

Project Type: WASTEWATER FACILITY

Project Description: Septic tank effluent pump and/or collection systems to pump stations and soil-based wastewater disposal system, 12,600 gpd minimum capacity. 23 initial connections, 42 equivalent users. Final system capacity to be determined pending additional soil borings in early 2021. Collection system will be constructed primarily withing existing road ROW; disposal site is a former agricultural field. Construction anticipated fall 2021 at earliest.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/44.61025047106935N73.01347025290325W



Counties: Chittenden, VT

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: December 03, 2020
Consultation Code: 05E1NE00-2021-TA-0601
Event Code: 05E1NE00-2021-E-01827
Project Name: Westford Community Wastewater Disposal System

Subject: Verification letter for the 'Westford Community Wastewater Disposal System' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions.

Dear Amy Macrellis:

The U.S. Fish and Wildlife Service (Service) received on December 03, 2020 your effects determination for the 'Westford Community Wastewater Disposal System' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"[1] prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

---

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

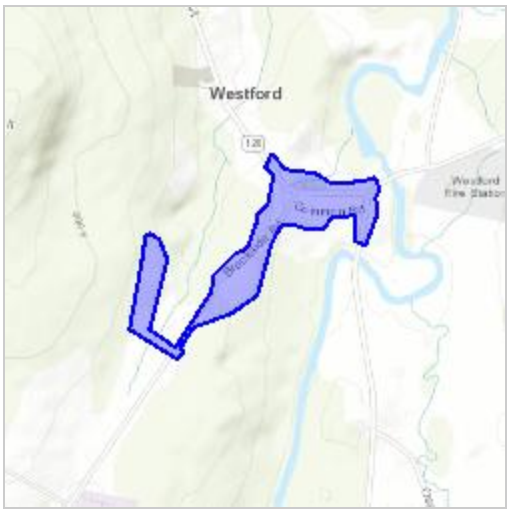
Westford Community Wastewater Disposal System

2. Description

The following description was provided for the project 'Westford Community Wastewater Disposal System':

> Septic tank effluent pump and/or collection systems to pump stations and soil-based wastewater disposal system, 12,600 gpd minimum capacity. 23 initial connections, 42 equivalent users. Final system capacity to be determined pending additional soil borings in early 2021. Collection system will be constructed primarily withing existing road ROW; disposal site is a former agricultural field. Construction anticipated fall 2021 at earliest.

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/44.61025047106935N73.01347025290325W



Determination Key Result

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service’s PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?

   Yes

2. Have you determined that the proposed action will have "no effect" on the northern long-eared bat? (If you are unsure select "No")

   No

3. Will your activity purposefully **Take** northern long-eared bats?

   No

4. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?

   Automatically answered
   No

5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

   Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html.

   Yes

6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

   No

7. Will the action involve Tree Removal?

   No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type ‘0’ in questions 1-3.

1. Estimated total acres of forest conversion:

0

2. If known, estimated acres of forest conversion from April 1 to October 31

0

3. If known, estimated acres of forest conversion from June 1 to July 31

0

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type ‘0’ in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type ‘0’ in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type ‘0’ in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?
0

Amy Macrellis

From: Marshall, Everett <Everett.Marshall@vermont.gov>
Sent: Tuesday, February 2, 2021 3:14 PM
To: Amy Macrellis
Cc: Brad Washburn (bwashburn@gmeinc.biz); Gobeille, John
Subject: RE: Rare, threatened and endangered species information request
Attachments: Figure3_Westford Enviro Sensitive Areas EID - 2020.pdf

We don't have any RTE species or necessary wildlife habitat mapped for the project area. I've copied our District Wildlife Biologist John Gobeille for his information.

VERMONT

Due to the coronavirus (COVID-19), the Agency of Natural Resources is taking additional safety measures to protect our employees, partners and customers. We anticipate we will be working remotely until a least March 31, 2021 and encourage you to communicate electronically or via phone to the greatest extent possible. Thank you for your patience and understanding that responses may occasionally be delayed.

Everett Marshall (he/him)
Information Mgr./Natural Heritage Coord.
Vermont Fish and Wildlife Dept.
Vermont Agency of Natural Resources
Davis 2, 1 National Life Dr | Montpelier, VT 05620-3901
802-371-7333 (cell)
http://anr.vermont.gov/

From: Amy Macrellis <amacrellis@stone-env.com>
Sent: Wednesday, January 27, 2021 11:41 AM
To: Marshall, Everett <Everett.Marshall@vermont.gov>
Cc: Brad Washburn (bwashburn@gmeinc.biz) <bwashburn@gmeinc.biz>
Subject: Rare, threatened and endangered species information request

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.
Good morning Everett,

I pulled your contact information from an (admittedly dusty) review you did for Waitsfield's community water project way back in 2006 – so if you are no longer the right person to contact for these determinations, please let me know or forward me on to the right person!

I am working on wrapping up preliminary engineering and related environmental documentation for the Westford Community Wastewater Disposal System, which is centered around the Westford Town Common village area. I have been through the USFWS online consultation (clean bill of health with regard to Northern Long-eared Bat, the only flag raised through that process). I also reviewed mapping data available in the ANR Atlas, where it does not appear to me that our project will come close to identified RTE habitat or deer wintering areas, etc.

Attached is a map showing our proposed project's anticipated maximum disturbance area and environmental sensitivities (wetlands, prime ag, etc.). I would greatly appreciate your assistance in determining whether our project might adversely affect a rare, threatened, or endangered species, or other critical wildlife habitat. I can also provide a shapefile of the project limits, or other exhibits, if those will help your review.

Thank you very much for your time, and please feel free to reach out to me with any questions or concerns.

Best regards,
Amy

Amy Macrellis
Senior Water Quality Specialist
535 Stone Cutters Way Montpelier, VT 05602 USA
phone 802-229-1884 **email** amacrellis@stone-env.com
cell 802-272-8772 **web** www.stone-env.com

APPENDIX E: ARCHAEOLOGICAL INFORMATION

HARTGEN
archeological associates inc

ARCHEOLOGICAL RESOURCE ASSESSMENT

Westford Wastewater Project

Town of Westford
Chittenden County, Vermont

HAA # 5595-11

Submitted to:
Stone Environmental
535 Stone Cutters Way
Montpelier, VT 05602

Prepared by:
Hartgen Archeological Associates, Inc.

P.O. Box 81
Putney, VT 05346
p +1 802 387 6020
f +1 802 387 8524
e hartgen@hartgen.com

www.hartgen.com

An ACRA Member Firm
www.acra-crm.org

January 2021

MANAGEMENT SUMMARY

SHPO Project Review Number:
Involved State and Federal Agencies: *Vermont Department of Environmental Conservation (DEC)*
Phase of Survey: *Archeological Resource Assessment (ARA)*

LOCATION INFORMATION

Municipality: *Town of Westford*
County: *Chittenden County*

SURVEY AREA

Length: *2.23 miles (3.59 km)*
Width: *15 feet (4.6 m)*
Area: *5.52 acres (2.23 ha)*

RESULTS OF RESEARCH

Archeological sites within one mile: *Seven, 6 precontact, 1 historic*
Surveys in or adjacent: *None*
NR/NRE sites in or adjacent: *None*
Precontact Sensitivity: *Moderate*
Historic Sensitivity: *Moderate*

RECOMMENDATIONS

As described in this report, areas that have not been previously disturbed are likely present in front of historic houses and elsewhere on individual parcels. In addition, the north end of the disposal area is level and overlooks a ravine to the north. These areas are of concern for disturbance of archeological deposits by the project. Phase IB archeological survey is recommended for those locations.

Report Authors: *Thomas R. Jamison, PhD, RPA #16566*
Date of Report: *January 2021*

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Map List

Photograph List

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ARCHEOLOGICAL RESOURCE ASSESSMENT

1 Introduction

Hartgen Archeological Associates, Inc. (Hartgen) conducted an Archeological Resource Assessment for the proposed Westford Wastewater Project (Project) located in the Town of Westford, Chittenden County, Vermont (Map 1). The Project requires approvals by the Vermont Department of Environmental Conservation (DEC). This investigation was conducted to comply with Section 106 of the National Historic Preservation Act of 1966, as amended, and will be reviewed by the Vermont Division for Historic Preservation (VDHP). This investigation adheres to the Vermont State Historic Preservation Office's (SHPO) *Guidelines for Conducting Archeology in Vermont* (2017).

2 Project Information

A site visit was conducted by Thomas R. Jamison on November 16, 2020 to observe and photograph existing conditions within the Project Area. The information gathered during the site visit is included in the relevant sections of the report.

2.1 Project Location

The project is located near the center of the Town of Westford in the village of Westford with extensions along Brookside Road, Route 128, Common Road and Cambridge Road (Map 2).

2.2 Description of the Project

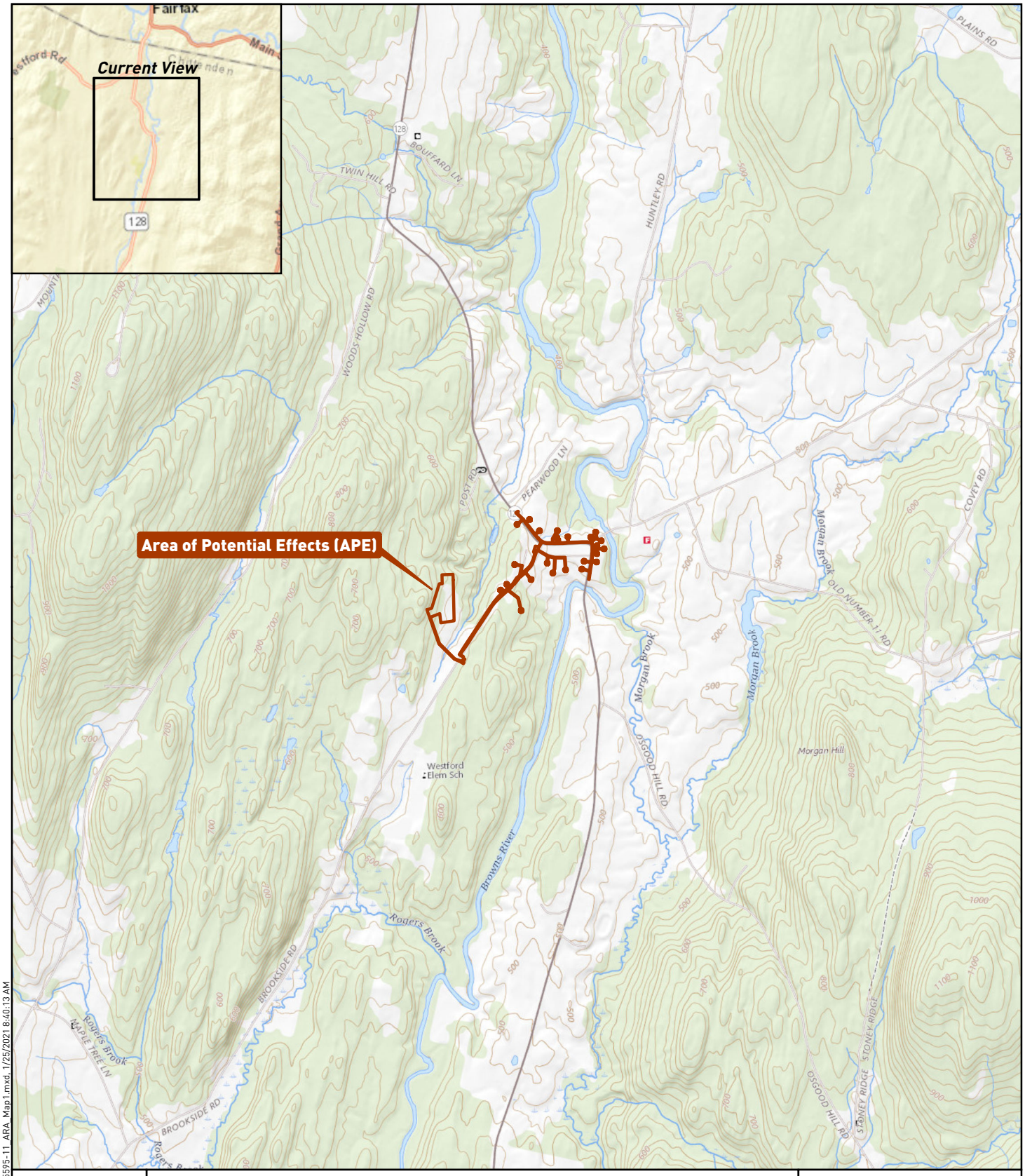
The project entails proposed wastewater treatment and disposal for the town center with a disposal area at the edge of town along Brookside Road. Twenty-three service connections have been identified throughout the village.

2.3 Description of the Area of Potential Effects (APE)

The area of potential effects (APE) includes all portions of the property that will be directly or indirectly altered by the proposed undertaking. The project APE includes approximately 1.67 miles (2.7 km) of sewer alignments along with twenty-three service lines totaling approximately 1,983 feet (604 m). In addition, four disposal fields are proposed for an open area west of Brookside Road, connected to the system by a 975 foot (297 m) long force main. The disposal fields encompass approximately 1.47 acres (0.6 ha). Therefore, assuming a width of 15 feet (4.6 m) for the line APEs, the total APE encompasses approximately 5.52 acres (2.23 ha).

3 Environmental Background

The environment of an area is significant for determining the sensitivity of the Project Area for archeological resources. Precontact and historic groups often favored level, well-drained areas near wetlands and waterways. Therefore, topography, proximity to wetlands, and soils are examined to determine if there are landforms in the Project Area that are more likely to contain archeological resources. In addition, bedrock formations may contain chert or other resources that may have been quarried by precontact groups. Soil conditions can provide a clue to past climatic conditions, as well as changes in local hydrology.



1,000 0 1,000 2,000 Feet

300 0 300 600 Meters

Note: Contour interval is 20 feet.

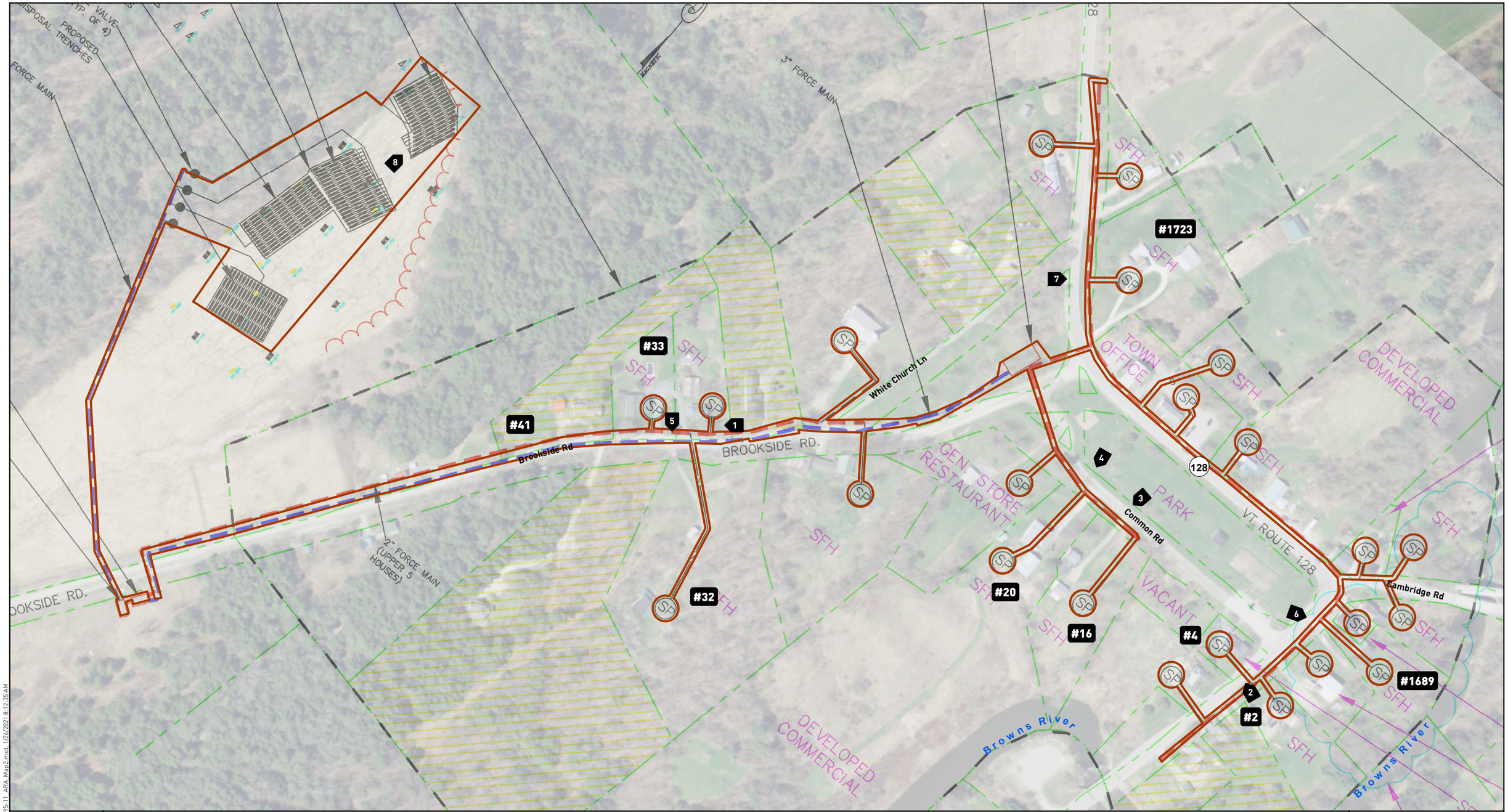
Project Location

GIS Services Accessed 1/25/2021: Environmental Systems Research Institute, Inc., World Street Map; USGS The National Map

HARTGEN archeological associates inc

Map 1

E:\5595\GIS\Documents\HAA_5595-11_ARA_Map1.mxd, 1/25/2021 8:40:13 AM



100 0 100 200 Feet
30 0 30 60 Meters

Legend

Photo Angle

Area of Potential Effects (APE)

Project Map

Green Mountain Engineering, Disposal Field Layout, 3/20/2019;
Environmental Systems Research Institute, Inc.,
World Imagery Accessed 1/26/2021

HARTGEN archeological associates inc

Map 2

E:\5595\GIS\Documents\HAA_5595_11_ARA_Map2.mxd, 1/26/2021 8:12:35 AM

3.1 Present Land Use and Current Conditions

The project area runs through the village of Westford, along mostly residential streets. The front lawns of houses are generally small with the buildings close to the road, with a few exceptions being larger properties with houses set back some distance. The town offices, library, country store/cafe and two churches are the only non-residential buildings adjacent to the APE. The disposal fields are proposed for an open field southwest of the village.

3.2 Soils

Soil surveys provide a general characterization of the types and depths of soils that are found in an area. This information is an important factor in determining the appropriate methodology if and when a field study is recommended. The soil type also informs the degree of artifact visibility and likely recovery rates. For example, artifacts are more visible and more easily recovered in sand than in stiff glacial clay, which will not pass through a screen easily. The soils of the project area developed on sediments laid down in glacial lakes, in glacial outwash and in glacial till. None of these contexts have the potential for deeply stratified archeological deposits.

Table 1. Soils in Project Area

Symbol	Name	Textures	Slope	Drainage	Landform
MyB	Munson and Rayhnam	Silt loam	2-8%	Somewhat poorly drained	Lake plain
LmC	Lyman-Marlow	Rocky loam	12-20%	Somewhat excessively drained	Glaciated uplands
MuD	Munson and Belgrade	Silt loams	12-25%	Somewhat poorly drained	Lake plain
StC	Stetson	Gravelly fine sandy loam	12-20%	Well drained	Glacial outwash
LyD	Lyman-Marlow	Loam, rocky	5-30%	Somewhat excessively drained	Glacial till
MyC	Munson and Rayhnam	Silt loam	6-12%	Somewhat poorly drained	Lake plain
LyE	Lyman-Marlow	Loam, rocky	30-60%	Somewhat poorly drained	Glacial till

3.3 Bedrock Geology

The bedrock in the Project Area is on the Pinnacle Formation that consists of "gray, foliated muscovite-chlorite-biotite feldspar-quartz schist, phyllite, and metagraywacke" (Ratcliffe 2011). None of these components were likely to be utilized for stone tool production. However, they could have been utilized on an expedient basis.

3.4 Physiography and Hydrology

The Project Area is an area of generally rolling hills incised by Browns River and tributary brooks. Browns River flows from west to east originating on the west side of Mount Mansfield and ending at its confluence with the Lamoille River in Fairfax, north of the project area. It passes along the east side of the APE where it drops over several small rapids and falls. A tributary of the river flows along the west side of Brookside Road, heading north to the river.

4 Documentary Research

Hartgen conducted research at the Vermont Division for Historic Preservation (VDHP) to identify previously reported archeological sites, State and National Register (SR/NR) properties, properties determined eligible for the NR (NRE), and previous cultural resource surveys.

4.1 Archeological Sites

The archeological site files at VDHP contained seven sites within one mile (1.6 km) of the Project Area (Table 2). Previously reported archeological sites provide an overview of both the types of sites that may be present in the APE and the relationship of sites throughout the surrounding region. The presence of few reported sites, however, may result from a lack of previous systematic survey and does not necessarily indicate a decreased archeological sensitivity within the APE.

The precontact archeological sites reported in the project vicinity document the extensive long term use of the area dating from at least the Early Archaic (9000 to 7500 BP) to the Middle or Late Woodland (2050 to 350 BP). Most of the precontact sites are located in close proximity to the Browns River, while those set away from the river may be isolated finds or secondary deposits moved from elsewhere. The one historic site does not reflect the historic settlement of the area, but the lack of investigation and reporting of historic archeological sites.

Table 2. Vermont Archeological Inventory (VAI) sites within one mile (1.6 km) of the Project Area

VAI Site No.	Site Identifier	Description	Proximity to Project Area
VT-CH-0163		Late Archaic and Middle or Late Woodland, projectile points	0.3 mi/0.5 km to N
VT-CH-0319	Ryon	Unknown precontact, quartz flakes and fire cracked rock	0.53 mi/0.86 km to N
VT-CH-0327	Woodruff-Gleason Farmstead	19th-century house and barn foundations	0.87 mi/1.4 km to S/SE
VT-CH-0572	Birnholtz	Unknown precontact, flake scatter	0.33 mi/0.52 km to N
VT-CH-0653	Westford Common	Early to Middle Archaic, Kirk or Neville projectile point, isolated find	Adjacent to APE
VT-CH-0741		Unknown precontact, chert chopping tool, isolated find	Adjacent to APE
VT-CH-1161	Nora Sabo	Unknown precontact, quartz biface fragment	0.25 mi/0.4 km to N/NE

4.2 Historic Properties

An examination of the files at VDHP identified no NR properties and no SR or NRE properties. However, five properties listed in the Vermont Historic Sites and Structures Survey (VHSSS) are located adjacent to the APE (Table 3). They are all in close proximity to the Westford Common and date from as early as 1828 (with 1911 remodeling) to 1844. These structures include residential, religious and town buildings.

Table 3. Inventoried properties within or adjacent to the APE

Photo	VHSSS No.	Property Name/Address	Description of Building
	0412-51	Westford Congregational Church/21 Brookside Road	1840 Greek Revival church
	0412-52	Fay House/1723 VT Route 128	c. 1835 brick Greek Revival house
	0412-53	Westford Library/1713 VT Route 128	1844 Greek Revival meeting house
	0412-54	Old Hotel/Stark House/1695 VT Route 128	c. 1830 Greek Revival house/former hotel
	0412-55	Westford Baptist Church/1685 VT Route 128	1828/1911 brick Greek Revival/Queen Anne meeting house/church

4.3 Previous Surveys

No previous surveys have been conducted within or adjacent to the project APE.

5 Historical Map Review

The 19th-century maps of the project area show the village developed on much the same footprint as it currently occupies (Map 3). A few additional structures are shown on the 20th-century USGS quadrangles, but few significant changes are noted.

6 Archeological Discussion

6.1 Precontact Archeological Sensitivity Assessment

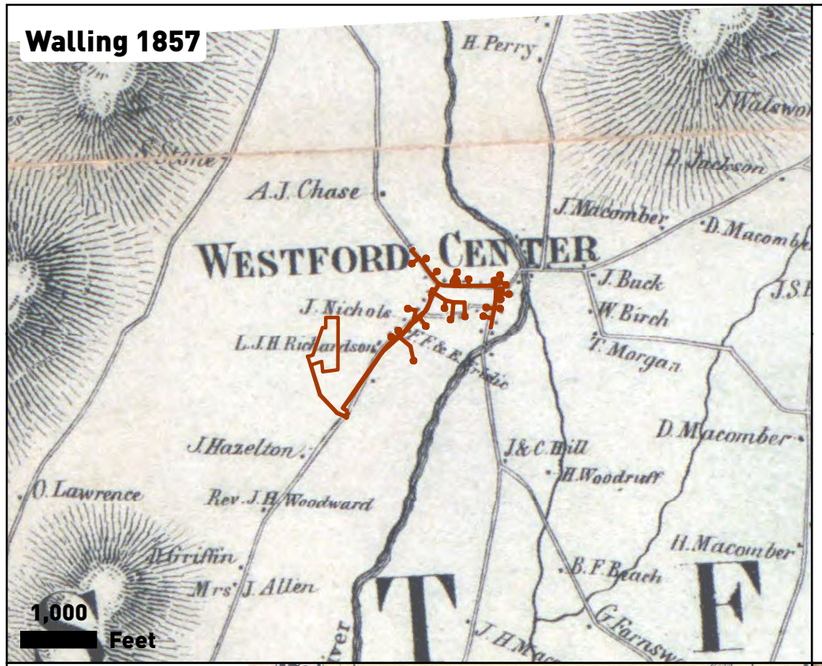
Completion of the VDHP Environmental Predictive Model provides a measure of the precontact archeological sensitivity of the project area (Appendix 1). The Project Area is sensitive for proximity to the Browns River and a tributary. Points were also added for the Project Area being near falls in the Browns River, the travel corridor of the river and high landforms overlooking drainages. The score was reduced due to disturbance and slope in much of the area. The Project Area has a score of 4. A score of 32 and above is considered to indicate precontact sensitivity. The APE overall has a low score due to disturbance and slope. The disturbance is primarily related to the roadside location of most of the sewer lines throughout the village. Sloped areas are located in most of the disposal area southwest of the village.

6.2 Historic Archeological Sensitivity Assessment

The historic sensitivity of an area is based primarily on proximity to previously documented historic archeological sites, map-documented structures, or other documented historical activities (e.g. battlefields).

The project area is focused on the village of Westford, chartered in 1763, with the first settler arriving in 1787 (Hemenway 1867). At the end of the 18th century, a saw mill, grist mill and forge were established in quick succession along Browns River northeast of the APE. These developments served to establish Westford Center as the focal point of the town. The structures around the common dating to the early 19th century sprang from these early developments. Therefore, the village has a high sensitivity for early historic archeological deposits associated with the early village. Although front yards are often considered to have low sensitivity for historic deposits associated with the adjacent residences (Borstel 2005), the village being a focus of early settlement may indicate increased sensitivity related to structures dating prior to the early industrial developments in the village such as the saw mill. Such early structures may have been located closer to the roads than those that followed.

Walling 1857



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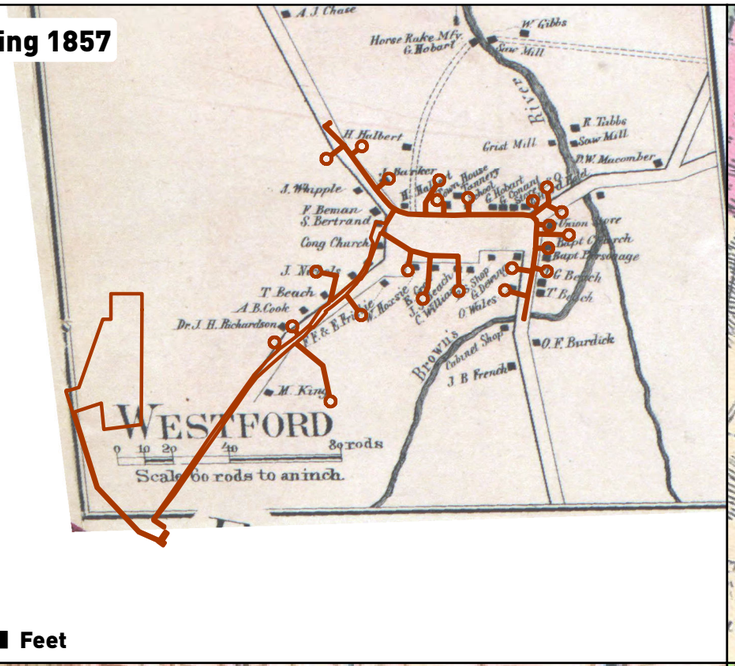

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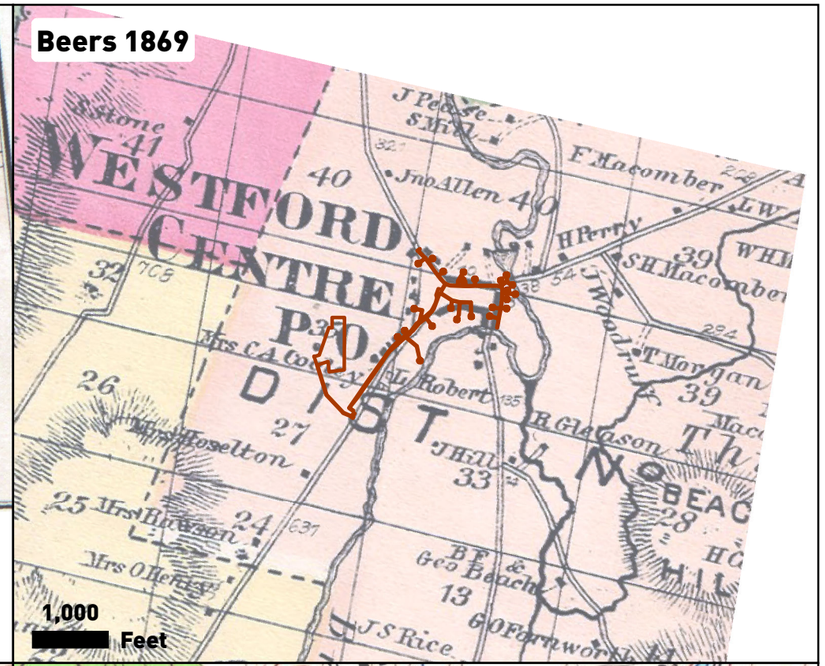

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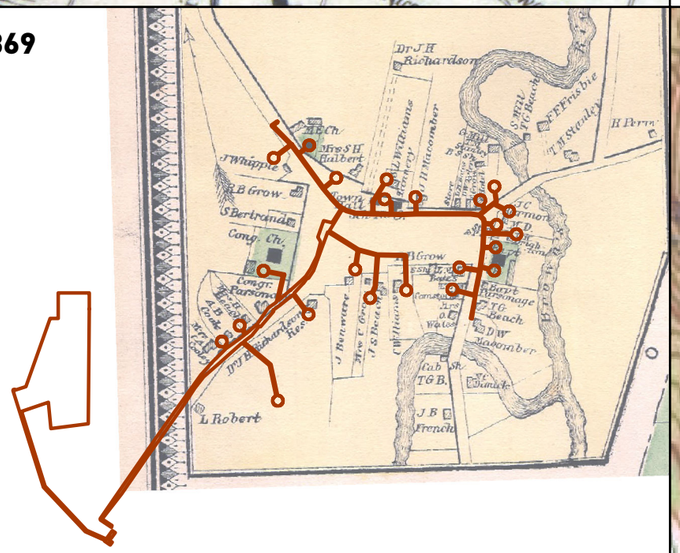

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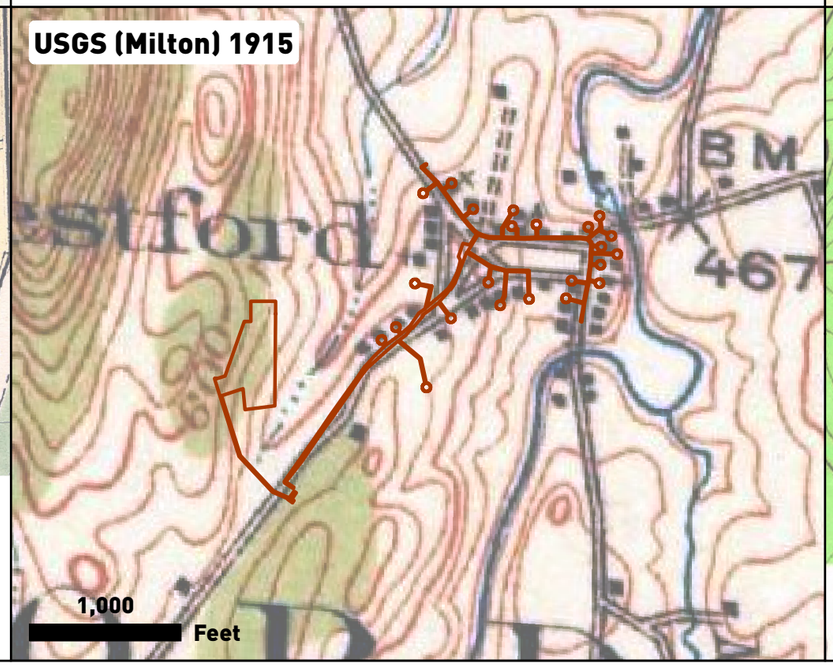
USGS (Milton) 1915



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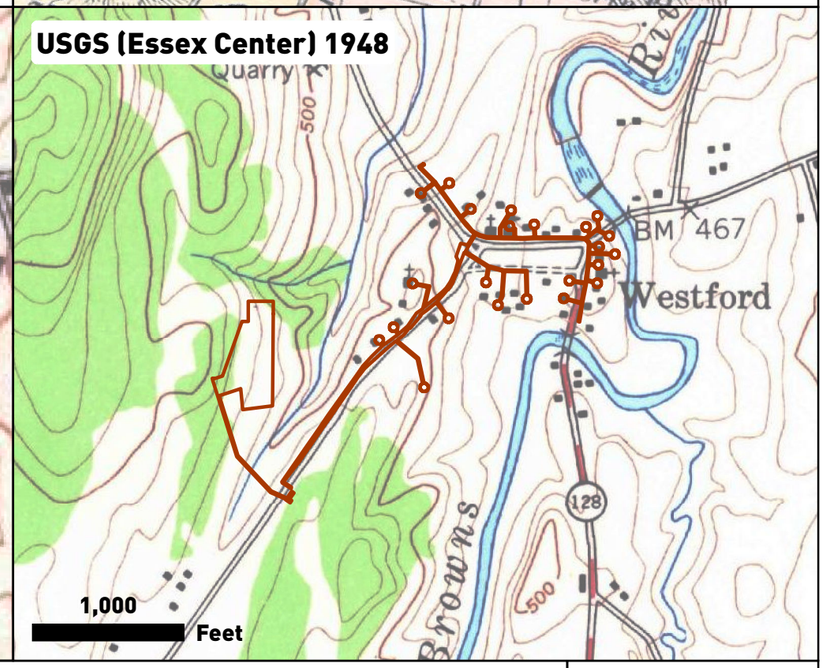
USGS (Essex Center) 1948



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Legend

Area of Potential Effects (APE)

Historical Maps

1857-1948

HARTGEN archeological associates inc

Map 3

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6.3 Archeological Potential

Archeological potential is the likelihood of locating intact archeological remains within an area. The consideration of archeological potential takes into account subsequent uses of an area and the impact those uses would likely have on archeological remains.

Regarding the main lines, the only area of concern is the section of Brookside Road in front of #33 to 41 (Photo 1). If the line will be placed in the road shoulder, there are no concerns. If it will be in the lawn areas, Phase IB testing is recommended.

For the service lines, if they are to be placed in driveways, there are no concerns. Where the service lines are to be placed in undisturbed lawn areas, Phase IB testing is likely warranted. Service lines that may be of concern include the following:

- #4 Common Road – if the line is to be placed behind the house, Phase IB testing recommended (Photo 2). If it is to run into the side of the house straight from Route 128, no concerns.
- #16 and 20 Common Road – if the line is to be in the driveways, there is no concern (Photos 3 and 4). If across the lawn, Phase IB testing is recommended.
- #32 Brookside – if in the driveway, no concerns (Photo 5). If not, Phase IB testing recommended.
- #1689 and 1723 Route 128, if in the driveways, no concerns (Photos 6 and 7). If not, Phase IB testing recommended.

The Disposal area is generally sloped and not considered to have archeological potential. However, the north end is level and adjacent to the ravine of a tributary brook (Photo 8), so that area should be examined with Phase IB testing.

The pump station site is disturbed and of no concern.

Photo 1. Brookside Road (#33 in the foreground). If the sewer line installation will disturb areas outside of the road prism, Phase IB testing is recommended. View to the southwest.

Photo 2. Common Road (#4). If the service line will be placed in the back yard, Phase IB testing is recommended. View to the west.

Photo 3. Common Road (#16 to the left). If the service line installation will be placed in the lawn area, Phase IB testing is recommended. View to the south.

Photo 4. Common Road (#20). If the service line will be placed in the lawn area, Phase IB testing is recommended. View to the south.

Photo 5. Brookside Road (#32). If the service line will be placed in the lawn area, Phase IB testing is recommended. View to the southeast.

Photo 6. Route 128 (#1689). If the service line will be placed in the lawn area, Phase IB testing is recommended. View to the south.

Photo 7. Route 128 (#1723). If the service line will be placed in the lawn area, Phase IB testing is recommended. View to the northeast.

Photo 8. Disposal Area, north end. The north end of the disposal area is level and overlooks a ravine to the north. Phase IB testing is recommended. View to the north.

6.4 Archeological Recommendations

As described above, areas that have not been previously disturbed are likely present in front of historic houses and elsewhere on individual parcels. In addition, the north end of the disposal area is level and overlooks a ravine to the north. These areas are of concern for disturbance of archeological deposits by the project. Phase IB archeological survey is recommended for those locations.

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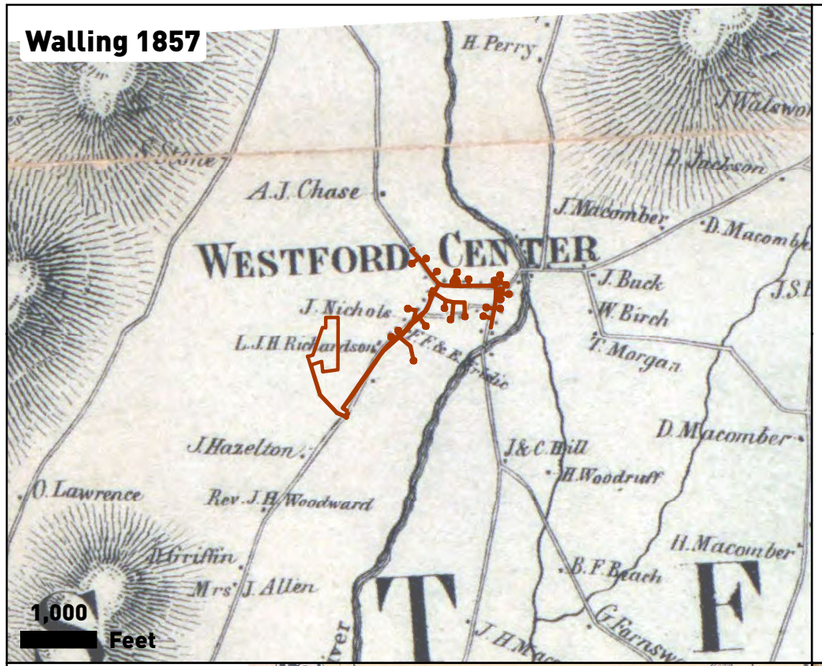
Appendix 1: VDHP Environmental Predictive Model

Walling 1857



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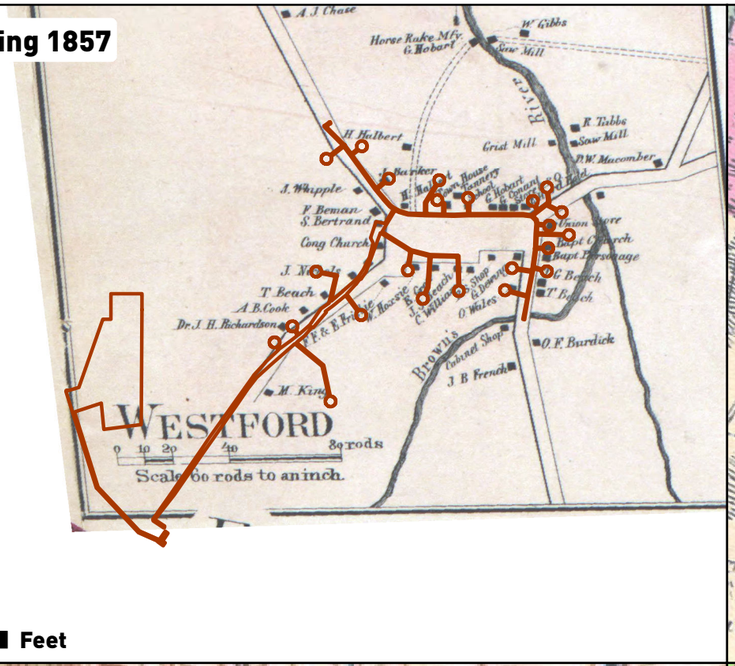

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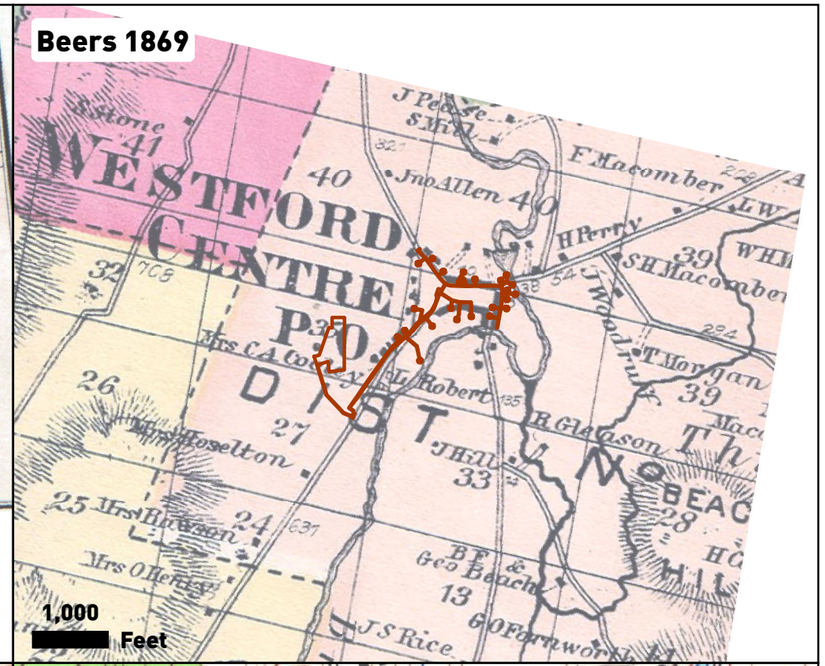

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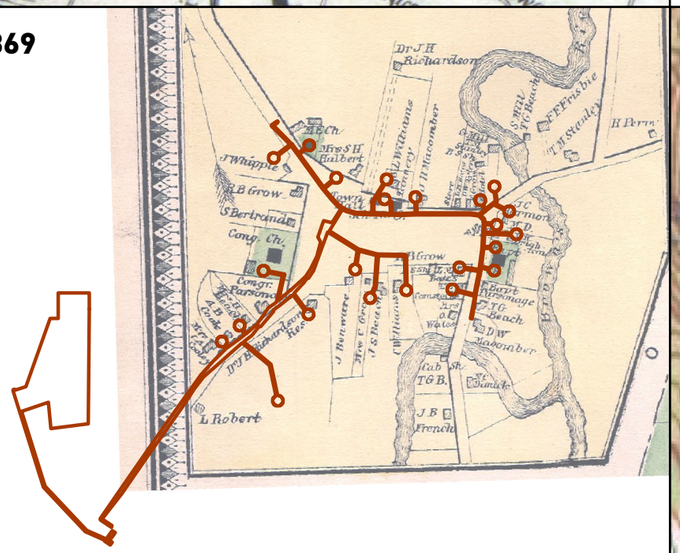

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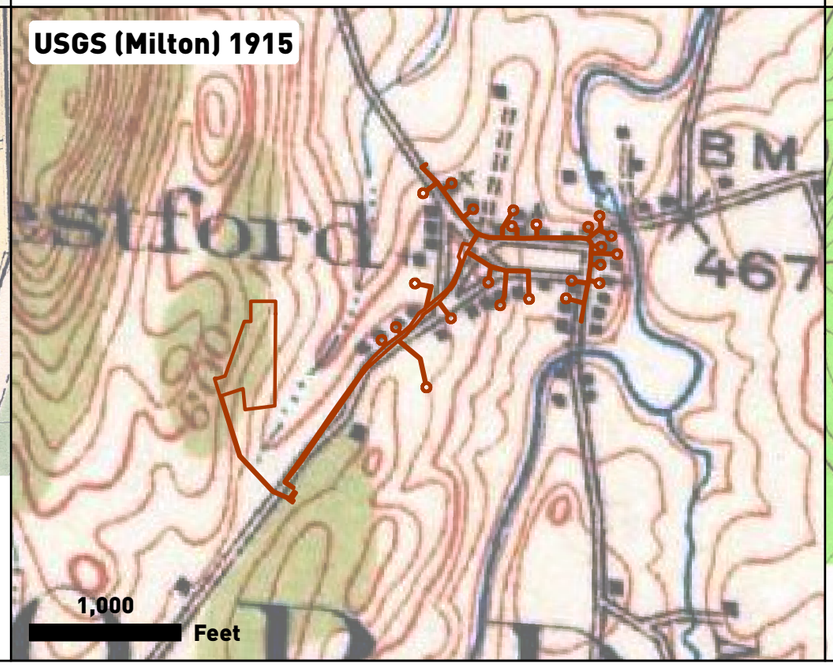
USGS (Milton) 1915



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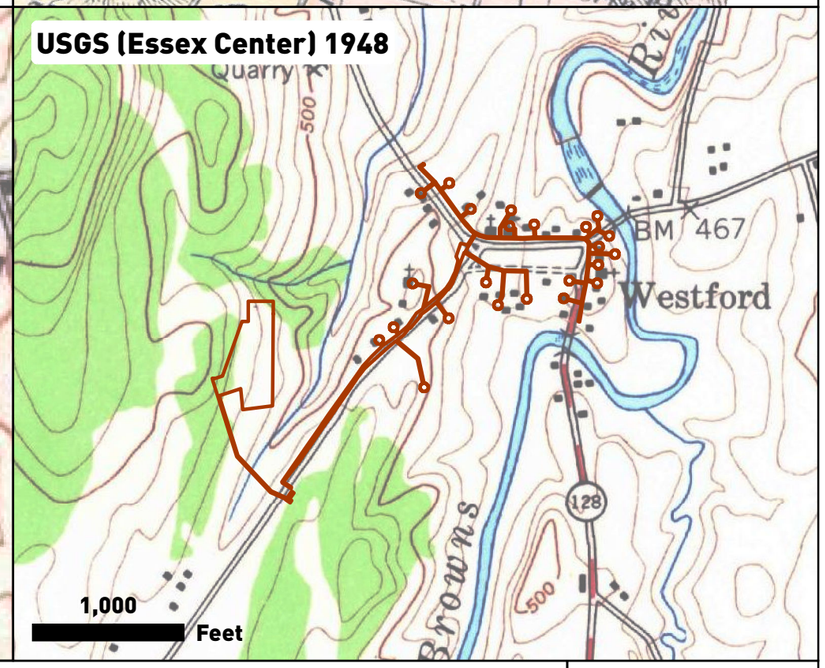

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Legend

Area of Potential Effects (APE)

Historical Maps

1857-1948

HARTGEN archeological associates inc

Map 3

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APPENDIX F: TOWN PLAN AND GROWTH MANAGEMENT INFORMATION

- 2021 Town Plan (February 2021)
- 2015 Town Common Conceptual Plan
- Act 250 determination correspondence

WESTFORD, VERMONT

2021

Town Plan

A Vision for the Future

First Adopted: July 1971
Last Adopted: February 25, 2021

1713 VT Route 128 www.westfordvt.us (802) 878-4587

Table of Contents

* Note: These maps were done in color, 11"x17" format, and are available for review at the Town Office. Digital versions (Adobe PDF) of the maps are also available and can be viewed on the Town of Westford website at: www.westfordvt.us

1 INTRODUCTION

1.1 Forward

The Westford Town Plan is the principal policy statement for the Town of Westford presenting a snapshot of existing conditions and a vision for the future. Specifically addressed in this plan are the following subjects: demographic trends, housing, economic development, natural resources, energy, facilities, utilities and services, education, transportation, historic resources, future land use, flood resiliency and implementation strategy.

The plan is implemented through Westford's various regulations and ordinances, which include the Westford Land Use and Development Regulations, as well as its boards, commissions, and committees.

Throughout this document the term Town Center Area refers to the Common and Village Zoning Districts.

1.2 Purpose

1. Provide a framework for planning the future of the Town.

2. Serve as a policy document in the Act 250 process. Any ambiguities in this plan shall be resolved by reference to the Westford Land Use and Development Regulations.

3. Serve as an energy compliance document to receive substantial deference in Public Utility Commission proceedings.

4. Provide a framework from which the Westford Land Use and Development Regulations can be updated and amended.

5. Serve as a source of data to be used by Town officials, residents, potential residents, and businesses in Westford.

6. Recommend studies or other programs to address specific community issues.

7. Serve as the basis for the Capital Budget and Program, All Hazards Mitigation Plan, and other implementation measures, as needed.

This Plan is founded on the assumption that landowners have the right to use their property, providing their use does not endanger the health, safety, and welfare of other residents of Westford, as well as providing that the use conforms to all local regulations and ordinances including the Westford Land Use and Development Regulations and Health Ordinance.

1.3 Vision Statement

Westford will plan for and manage growth while protecting and preserving the rural character, historical sites, natural resources, and working land of the Town. We envision a Town Center Area with a mix of commercial, residential, and municipal uses designed to promote community interaction and identity. We also envision a sustainable, working landscape in Westford's rural areas that allows low density residential use and low density, small scale commercial use in appropriate areas while preserving the Town's essential rural character and conserving the Town's natural resources, forests and working lands. Westford will search for innovative ways to achieve higher density growth in the Town Center Area and conserve open space and forest land outside of the Town Center Area.

In the interest of stabilizing the tax rate and ensuring the most efficient use of community resources, innovative techniques and grants shall be used as much as possible to enhance this vision of the Town.

1.4 Priorities

The following list outlines the Town of Westford's top implementation priorities for the time period between 2020 and 2028:

1. Town Center Area Vitality
   a. Foster redevelopment of village properties.
   b. Review and evaluate Town Offices to improve usefulness to the community and energy efficiency.
   c. Pursue utilization of Westford Common Hall and Brick Meeting House for greater access to community and community functions.
   d. Encourage diverse housing options, including accessible, senior, affordable and entry level housing.
   e. Develop innovative community wastewater systems to serve municipal facilities, community facilities, existing development, and future growth in the Town Center Area.
   f. Implement the *Westford Town Common – Conceptual Master Plan.*
      (Refer to Section 10 -Implementation Plan category titled Town Center)

2. Natural Resource Conservation
   a. Conduct a town-wide natural resource inventory.
   b. Preserve working lands (agriculture & silviculture).
   c. Develop a Forestry District and/or Conditional Use Review criteria in order to preserve and conserve Significant Natural Resources.
   d. Implement Westford Town Lands Management Plan.
   e. Develop trail connections between the Misty Meadow Trail and Forest, Maple Shade Town Forest, Town Common Area, and rural areas of Westford.
   f. Develop public access to the Browns River in proximity to the Town Center Area.

   (Refer to *Section 10 -Implementation Plan* category titled *Natural Resources*)

3. Town Services with Consideration of Demographic, Economic & Technological Trends.
   a. Advocate for reliable modern communications infrastructure to serve the Town including high speed internet, cellular and landline services.

b. Develop and implement emergency preparedness, response, and recovery plans.
c. Maintain the public road system and improve safety, walkability, and bike-ability.
(Refer to *Section 10 -Implementation Plan* categories titled *Transportation & Emergency Preparedness & Response*)

1.5 General Goals

The Town of Westford has established the following goals based on the results of community surveys, public forums and opinions contributed by the citizens of Westford. These Goals have been developed to meet the challenges and opportunities that face Westford now and into the future.

1. Preserve Westford's unique rural character and conserve open spaces outside of the Town Center Area, while respecting landowner rights and allowing low density development in appropriate areas that do not have significant value to the town in terms of natural resources, aesthetic value, and cultural, historical and economic importance associated with the working landscape.

2. Improve a strong sense of community spirit to bolster volunteerism, citizen participation, cohesion among residents, and an overall sense of Westford as a unique and valuable town and encourage the development of spaces where connection can occur and relationships develop.

3. Protect and encourage agricultural and forestry activities and recognize the future social and economic benefits they contribute to our community.

4. Continue to develop the Town Center Area in such a way that higher density mixed use development is encouraged, and appropriate infrastructure exists, or is planned for, to allow this area to serve as the Town's growth center.

5. Recognize the importance of our history and historic structures and support and encourage the preservation and protection of our historic and cultural resources.

6. Work towards community self-sustainability by reducing the amount of solid waste generated and energy consumed, harnessing renewable energy sources, fostering the production of agricultural products, and exploring community composting.

7. Identify and address transportation related alternatives to single occupancy-based transportation such as ride sharing, public charging stations and multimodal transportation.

8. Continue cooperation and coordination between all segments of Westford's town government to foster a sense of community and implement economic development goals.

9. Support the development of small-scale business to increase local employment options and opportunities through the regulatory climate, infrastructure, and state designation programs.

10. Encourage a diversity of housing types, including entry level, affordable, accessible, senior and co-housing.

11. Ensure that residents are provided with an adequate level of town services and infrastructure and that new growth does not outstrip the Town's ability to continue to provide this level of service to existing and future residents.

12. Encourage diverse recreational opportunities for all residents.

13. Encourage conservation and appropriate stewardship of natural resources, natural areas, wildlife corridors, waterways, floodplains, scenic areas, open land, forest blocks, steep slopes, and sensitive areas.

14. Continue the development, use and conservation of public trails throughout Town.

1.6 Planning Process

The Town of Westford has been involved in comprehensive planning since 1972. With the assistance of the Chittenden County Regional Planning Commission, a municipal plan was developed and adopted which laid the groundwork for developing the Westford Land Use and Development Regulations that provided for orderly growth in our community. Over the years, various amendments to the plan and regulations have been adopted in order to respond to ever-changing conditions and to manage growth.

The Town of Westford has an appointed Planning Commission, whose duties include preparing the Town Plan and Westford Land Use and Development Regulations and presenting those draft documents to the Selectboard for approval as well as carrying out and implementing planning studies. In 2008, the Town moved from a Zoning Board of Adjustment and Planning Commission to a Planning Commission and Development Review Board form of government. The full-time Planning Coordinator, whose duties include preparing board documents, providing technical assistance, and serving as a liaison between the public, local boards, and regional, state, and federal agencies, staffs both the Planning Commission and Development Review Board.

Comprehensive planning represents a community's best effort to examine its past and its present and to set a course for the future. The concept of community is important to Westford residents and maintaining it is becoming more challenging.

This plan is a revision of the 2015 Town Plan.

1.7 Relationship to Plans for Adjacent Towns and the Region

This Plan is generally compatible with both the Chittenden County ECOS Plan (2018) as well as Town Plans from the surrounding municipalities.

Chittenden County ECOS Plan (2018) – Westford's Town Plan embodies the same focus on village center growth that is emphasized in the ECOS Plan. Westford's Plan seeks to accommodate a limited share of the County's growth and development, recognizing the Town's infrastructure limitations, and that the County's core metro and transition areas will continue to be the primary focus for future development. It also recognizes and seeks to conserve the significant natural resources and open spaces that make Westford an important part of the County's rural landscape.

Georgia (minor portion of north-west corner) – The Georgia Town Plan identifies one land use area along the border. The Recreational Zoning District (20 acres per lot) encompasses a mountainous area of Town, which is generally unsuitable for development due to steep slopes, poor soils, and high elevations. Maintaining land in its natural state for environmental and recreational purposes is the primary goal of this District. The Westford Plan is largely compatible with the Georgia Plan, especially given the low-density development, steep slope and natural resource conservation goals described in Westford Town Plan.

Fairfax (majority of northern border) – The Fairfax Town Plan identifies three land use areas along the border. They are the Residential, Conservation and 100 Year Flood Zone Overlay Zoning Districts. The Residential District (1 ½ acres per lot) encompasses areas suitable for development located outside of, but adjacent to, Fairfax's Growth Center and Mixed-Use Zoning Districts. The Conservation District (5 acres per lot) encompasses lands that are generally not suited for development and contain significant natural resources. Conservation of significant natural resources is the primary goal within this area and, therefore, clustering is encouraged in this District to preserve working lands, natural resources, and the rural character. The 100 Year Flood Zone District encompasses significant rivers and streams with floodplains. This District is generally unsuitable for development. Protection of water resources for recreational, water quality and disaster prevention purposes is the primary goal of this District. The Westford Plan is generally compatible with the Fairfax Plan given water resource conservation, natural resource conservation and flood resiliency goals described in Westford Town Plan.

Cambridge (portion of northern border) – Cambridge does not regulate growth and development via zoning. Subdivision regulations were adopted in 2006. The Cambridge Town Plan land use map identifies the area adjacent to Westford as Rural Residential. The minimum lot size throughout Cambridge is 1 acre per lot which is significantly less than Westford's Rural 5 (5 acres per lot) and Rural 10 (10 acres per lot) Zoning Districts. However, Route 15, a major transportation corridor, runs through the northeast corner of Westford and continues into Cambridge via the shared northern boundary. Westford's Plan envisions residential development and small-scale business in this area which is consistent with current uses and development in this area of Cambridge. The Westford Plan is generally compatible with the Cambridge Plan given the Route 15 corridor development and natural resource preservation goals described in the Westford Plan.

Underhill (eastern border) – Underhill identifies the bulk of the border area as Rural Residential, which allows medium density development in suitable areas. The Underhill Town Plan notes that Planned Unit Developments are available to property owners but does not specifically encourage or require them. Underhill also identifies and seeks to protect streams and wetlands in this area, similar to Westford's efforts to protect its water resources. However, the base density for Underhill's Rural Residential District (3 acres per lot) is substantially greater than Westford's Rural 10 District (approx. 10 acres per lot). A small portion of Underhill's border is located in the Soil and Water Conservation District, which seeks to protect significant natural resource with larger minimum lot sizes (15 acres per lot). The Westford Plan is generally compatible with the Underhill Plan given the natural resource conservation and water resource conservation goals described in the Westford Plan.

Jericho (minor portion of south eastern border) - Westford shares a small boundary with Jericho along its southeastern corner. The Jericho Town Plan designates this area as Rural/Agriculture Residential. The purpose of this area is to provide open land for agriculture, forestry, and rural housing. Minimum density is 10 acres per lot and Planned Unit Developments are encouraged within this area. Westford's Plan is compatible with the Jericho Plan given the similar natural resource conservation, water resource conservation and rural residential goals described in the Westford Plan.

Essex (southern border) – The Essex Town Plan identifies three land use areas along the border. The Agriculture Residential Zoning District which has base density higher (3 acres per lot) than Westford's Rural 5 (5 acres per lot) and Rural 10 (10 acres per lot) Zoning Districts. The purpose of this district is to preserve agricultural lands and open space. The Conservation Zoning District has the same base density and purpose as Westford's Rural 10 Zoning District (10 acres per lot). The Floodplain Zoning District along the Browns River and Alder Brook River severely limits development. The Westford Plan is generally compatible with the Essex Plan given the rural residential, agricultural and flood resiliency goals described in the Westford Plan.

Colchester (minor portion of south-western border) - Colchester identifies the area bordering Westford as Agriculture. It is composed primarily of agricultural lands and very low-density housing (25 acres per lot). Westford's Plan identifies the western half of the Town as the Rural 10 Zoning District (10 acres per lot). The Westford Plan is generally compatible with the Colchester Plan given the rural residential, natural resource conversation and working land conservation goals described in the Westford Plan.

Milton (western border) – Milton's eastern border is identified as one of Milton's main rural areas. It is composed primarily of low density residential with agricultural and forestry uses. Soil conditions and topography pose development constraints in much of this area. Milton has designated their boundary area as Forestry/Conservation/Scenic Ridgeline (approx. 14 acres per lot) and Agricultural/Rural Residential (approx. 9 acres per lot) Zoning Districts. Westford's Plan identifies the western half of the Town as the Rural 10 Zoning District (10 acres per lot). The Westford Plan is compatible with the Milton Plan given the rural residential, natural resource conversation and working land conservation goals described in the Westford Plan.

2 HISTORIC FEATURES

2.1 Policy

It is the policy of the Town of Westford to consider the effect of new development on historic resources early in the planning process so that impacts can be identified and assessed. Most historic resources are privately owned, but their preservation should be encouraged because of their important character and community function.

2.2 Inventory & Discussion

2.2.1 Introduction

Westford's historical resources provide tangible links between past and present. The Town's historical resources range from evidence of earliest human settlement in the prehistoric period to mill sites abandoned in the early twentieth century. Many of Westford's residences and other structures, including barns, churches, library, and covered bridge are historic (over 50 years old, and often much older). Much of the landscape can be considered historic: field patterns, stone walls, woodlots, sugar maple stands, and roads are the reminders of past residents and their activities.

Some evidence of the Town's heritage is familiar and easy to recognize, such as the Town Common, the covered bridge, cemeteries, and agricultural fields. Equally important historic resources are less familiar including Native American camp sites along the Browns River which are thousands of years old, extensive sawmill remains next to Roger's Brook and old farmsteads.

2.2.2 Westford's Past

Westford was granted as a town on June 8, 1763 to Henry Franklin and 64 associates in a charter from King George III signed by Gov. Benning Wentworth of New Hampshire. The town as granted covered 36 square miles (23,040 acres). The first settlers did not arrive until the 1780's. By 1791, the Town's population was only 63. The first Town Meeting was held on March 25, 1793, during which the Town was organized.

The Browns River flowing north through town afforded good mill privileges to the early nineteenth century residents. The first sawmill was started by Elisha Baker in 1795. Soon after, Joshua Stanton built a forge and gristmill, which attracted settlers to the village center. The population in 1810 was 1,107 and by 1850 it had increased to 1,458. In the late 1800's, the village had two stores, three blacksmith shops, a cabinet and wheelwright shop, one sawmill, a gristmill, a cider mill, a cheese box factory, a tannery, a school, and two doctors. The population in 1880 was 1,133.

Westford has always been an agricultural town. In an 1881 gazetteer listing of some 311 households, only 64 did not list farming as an occupation. Brookside was a thriving neighborhood at one time. From 1893 to 1910, it had its own post office. A variety of industries were located there, including two sawmills, a cider mill, a boot and shoemaker, a cheese box factory, and the Union Cheese Factory Co., which was organized in 1865. The Cloverdale section in the eastern part of Town developed around Westford's only rail stop. The railway ran until 1938. This area

was mainly agricultural, although a dealer in marble, a manufacturer of tombstones, and a creamery were located here.

In the early 1900's, with its industries diminishing, the Town was left primarily a farming and logging community. By 1950, as agriculture became less profitable, the Town experienced a substantial decline in population to 685 individuals. In the 1960's, the population expanded, and residential development increased. The Town, however, retained its rural character. The influx of people in the 1980's, most commuting to work elsewhere, raised the 1960 population of 680 to 1,740 in 1990. Since the 1990's the number of working farms has greatly decreased and the population has leveled off at approximately 2,000 people. The last dairy farm registered as a Medium Farm Operation closed in 2018. As dairy farming has decreased other diversified farming operations have sprung up in town.

The Town's first school districts were established in 1797. Eventually 12 were organized. Within each district, parents shared, according to the number of children they had in school, in providing "boarding around" for the teacher and a quota of wood for the school stove. In the 1880-81 annual report, superintendent Macomber noted "...but when we consider that a good school in each district contributes largely to the support of virtue, morality and civil liberty, the sacrifice seems none too great". This comment was made with respect to the year's school expense of nearly $3,000. By 1951, three school districts were left: in the village, Brookside, and Cloverdale. By the 1960's, the village school was serving nearly all the children in Town. In 1965, the present Westford School was built and dedicated to Carl S. Paige in recognition of his outstanding service to Westford, including the offices of road commissioner, town representative, and over a quarter of a century as a School Director. Only one of the old one-room schoolhouses still stands, and it has been converted to a residence. The village school was razed in 1971 and the new Town Office building was built on the spot in 1973.

Westford's Public Library was started in 1895-96. First located in the lower level of the old Town Hall (the present library building), the library opened with 117 books. In 1919, the Library and its 3,000 volumes were housed in a small building, which had been built about 1885. This small building was moved twice, serving as a post office between the "hotel" and the bridge and as a store at the upper end of the Common. It was heated by a woodstove that was also used by the librarian, Irene Allen, to treat the children to toasted marshmallows. In 1973, funds to renovate the old Town Hall were approved and the library moved back into the building where it began.

The Baptist, Congregational, and Methodist churches were organized between 1798 and 1821. Each group had a building in the village. In 1919 the congregations were federated creating the United Church of Westford. Services were held in the Congregational Church until 2018. At this time there are no longer any active churches in Town. The Westford Common Hall (former Congregational Church) is in the process of reinventing itself as a community and performance space. The Brick Meeting House (former Baptist Church) is now used for community functions. The Methodist Church was moved north and converted into a barn in the 1920s; the barn was demolished in the 1990's.

In the spring of 1921, Clark B. Paige and Eugene Domingue, with the help of 34 interested townspeople, brought electricity to Town. Electric lines were not installed in the more remote parts of town until 1935, when the Rural Electrification Administration encouraged expansion of electric utilities.

The Common, totaling 2 acres, was given to the town in two pieces by two different families. The estate of Luke and Elizabeth Camp gave the eastern half of the Common to the Town in 1819 and Thomas Beech gave the western half to the Town in 1825. Extensive tree planting on the Common was undertaken in the late 1800's. In the late 1800's various networks of walking paths crossed the common connecting the various businesses and residences. At one time there was also a bandstand on the Common which was moved from one end to the other several times during the years that Roland Pigeon and Dan Jackson were strapping young lads. The only surviving trees from the planting effort in the 1800's are those on the United Church of Westford property, known as the Upper Common. In the 1990's significant upgrades were made to the Common which included underground drainage, a gazebo, an ice-skating rink, park benches and gardens. In 2013, trees were planted around the Common once again and in 2019 extensive maintenance of the Common and its facilities was undertaken.

In 2017, the Westford School District conveyed 64 acres surrounding the School to the Town, now known as the Misty Meadows Trails and Forest, In 2018, the Town worked with the Vermont Land Trust, Vermont Housing and Conservation Board and a local farmer, Donald Pouliot, to purchase the historic Hazelton/Jackson farm and forest lands, which now create the Maple Shade Town Forest. Collectively, these projects conserve significant natural resources as well as preserve historic and cultural resources for the use and enjoyment of the public.

Picturesque landscapes remain throughout the community. Many roads provide historic and contemporary views of farming and rural living. Most of the roads we use today are the original ones laid out by the early townspeople. Cambridge Road came into existence in the late 1820's when the Vermont Supreme Court appointed a committee to survey a market road from Burlington to Derby. Only a few roads disappeared between 1857 and 1869. In the 1970's roads in the eastern part of Town that hadn't been used for 40-50 years were discontinued and later returned to the Town under court order as public trails. Cloverdale is now accessible only by main roads through adjacent towns. Route 128 was first hard-surfaced in the 1940's.

2.3 Historic Resource Goals & Objectives

1. **Historical Society** - It is the mission of the Westford Historical Society to assist the community in protecting the Town's historical and cultural resources. Its objectives include:
   a. Protect, preserve, maintain and restore historic structures and sites.
   b. Educate residents on the historical aspects of the Town.

2. **Cultural & Historical Resource Protection** - Maintain the historic character of the Town Common, Town Common structures, and historic structures located in Town as a whole.

3. **Historical Society Museum** – Find a permeant place for Historical Society to preserve and display artifacts and inform the public of Westford history.

4. **Archaeological Sites** - Identify, protect and preserve important historic features of the Vermont landscape including archaeological sites and archaeologically sensitive areas.

3 POPULATION, HOUSING & EXISTING LAND USE

3.1 Policy

It is the policy of the Town of Westford to encourage the availability of a diverse housing stock that is affordable and accessible to a wide range of current and future residents, provide for an expanding population, and plan to accommodate its proportionate share of regional growth.

3.2 Inventory & Discussion

3.2.1 Demographics & Financial Security

In order to plan for future development, it is important to understand the elements affecting population growth in Westford. Analyses of population and demographic trends can assist the Town in evaluating present and future needs with respect to town services, housing, transportation, employment, etc. Some of the most basic demographic information is discussed below. More information can be found on the U.S. Census Bureau's American Factfinder website. (https://www.census.gov/programs-surveys/acs) [1]

According to the 2010 United States Census, the 2010 population of Westford was 2,029 persons. The American Community Survey estimated the population of Westford to be 2,019 in 2017. However, because of margins of error, this does not necessarily mean that population has decreased. The town will have a better sense of population dynamics after the release of data from the 2020 Census.

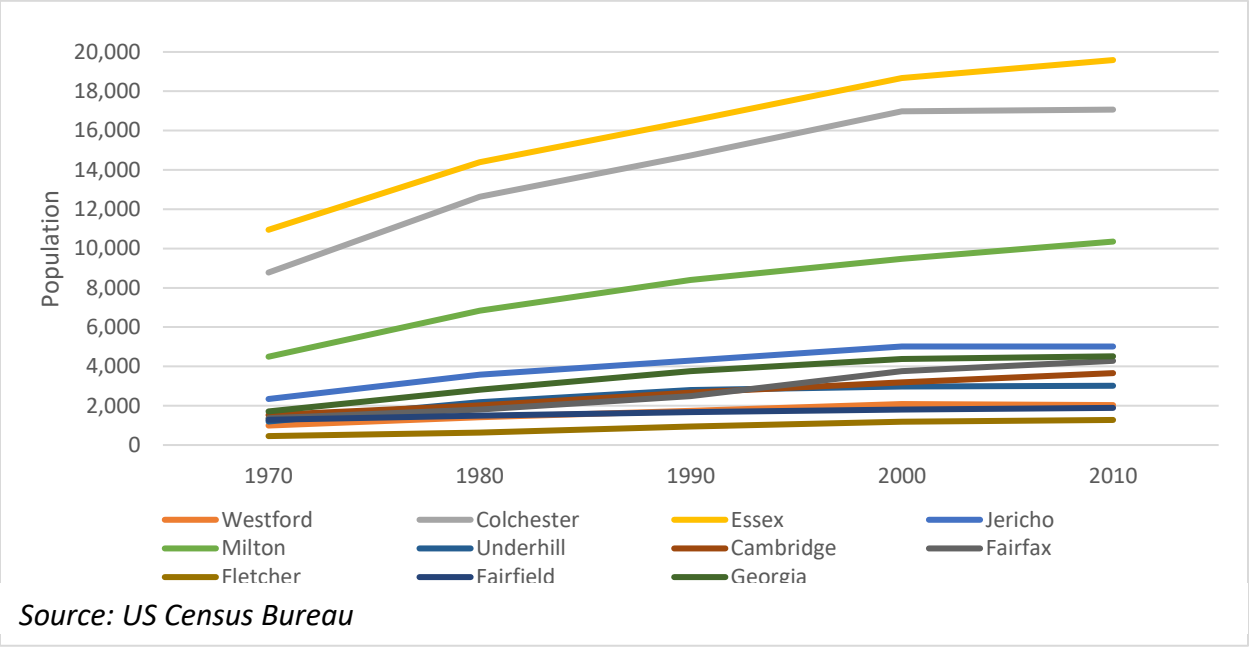
Table 1. Local and Regional Population Trends

	1970	1980	1990	2000	2010	% Change 2000-2010
Chittenden County	99,121	115,525	131,759	146,571	156,545	6.8% ↗
Westford	991	1,413	1,740	2,086	2,029	-2.7% ↘
Colchester	8,776	12,629	14,731	16,986	17,067	0.5% ↗
Essex	10,951	14,392	16,498	18,676	19,587	4.9% ↗
Jericho	2,343	3,575	4,302	5,015	5,009	0% →
Milton	4,495	6,829	8,404	9,479	10,352	9.2% ↗
Underhill	1,198	2,172	2799	2,980	3,016	1.2% ↗
Cambridge	1,528	2,019	2,667	3,186	3,659	14.8% ↗
Fairfax	1,366	1,805	2,486	3,765	4,285	13.8% ↗
Fletcher	456	626	941	1,179	1,277	8.3% ↗
Fairfield	1,285	1,493	1,680	1,800	1,891	5.1% ↗
Georgia	1,711	2,818	3,753	4,375	4,515	3.2% ↗

Source: US Census, 2010

[1]Because of Westford's small population, ACS estimates may have high margins of error. In some cases, this plan uses data from the 2010 Census to ensure reliability, rather than using 2017 ACS estimates. Where ACS estimates are used, the coefficient of variation (CV) for data points is calculated to determine whether margins of error are too high for a data point to be reliable. When the CV is below 15%, data are considered highly reliable, and these estimates are presented without caveat. When the CV is between 15% and 30%, the plan indicates that the data should be used with caution. Data with a CV over 30% are not reported to avoid unreliability. Methodology drawn from Jurjevich et al. "Navigating Statistical Uncertainty." *Journal of the American Planning Association* 84, no. 2 (Spring 2018): 112-126. Year-to-year changes between ACS estimates are statistically different unless otherwise reported.

Figure 1. Local and Regional Population Trends



Source: US Census Bureau

Westford and its neighbors have experienced slow but steady growth over the past few decades. This trend is projected to continue over the next decades. Table 2 shows population projections for Westford and for nearby Chittenden County towns until 2050.

Table 2. Population Projections for Westford and Neighboring Chittenden County Towns

	2010	2020	2030	2040	2050	% change, 2020-2050
Colchester	17,067	17,703	18,152	18,389	19,119	8%
Essex	19,587	21,599	22,577	23,103	24,020	11%
Jericho	5,009	5,146	5,247	5,301	5,511	7%
Milton	10,352	11,202	11,755	12,057	12,535	12%
Underhill	3,016	3,112	3,174	3,207	3,334	7%
Westford	2,029	2,137	2,225	2,271	2,361	10%
Source: CCRPC 2018 ECOS Plan 2050 Forecasts						

Tables 3 and 4 depict future population estimates for towns in surrounding counties. The two scenarios examine different external conditions such as the availability of employment in the region and the health of the overall economy in the region, state and nation. Scenario A assumes a similar migration rate as seen from 1990 to 2000 when the national economy was generally healthy. Scenario B assumes a similar migration rate as seen from 2000 to 2010 when the national economy was in a recession.

Table 3. Vermont 2010 Census Count Projections, 2020, 2030 – Scenario A

Neighboring Towns in Other Counties	2010 Census	2020	% changes from 2010	2030	% change from 2010
Cambridge	3,659	4,396	20.1%	5,074	38.7% ↗
Fairfax	4,285	5,232	22.1%	6,054	41.3% ↗
Fairfield	1,891	1,993	5.4%	2,090	10.5% ↗
Fletcher	1,277	1,424	11.5%	1,548	21.2% ↗
Georgia	4,515	4,822	6.8%	5,095	12.8% ↗
Source: Vermont Agency of Commerce and Community Development, 2013					

Table 4. Vermont 2010 Census Count Projections, 2020, 2030 – Scenario B

Neighboring Towns in Other Counties	2010 Census	2020	% changes from 2010	2030	% change from 2010
Cambridge	3,659	3,945	7.8%	4,119	12.6% ↗
Fairfax	4,285	4,981	16.2%	5,535	29.2% ↗
Fairfield	1,891	1,894	0.2%	1,904	0.7% ↗
Fletcher	1,277	1,354	6.0%	1,412	10.6% ↗
Georgia	4,515	4,583	1.5%	4,643	2.8% ↗
Source: Vermont Agency of Commerce and Community Development, 2013					

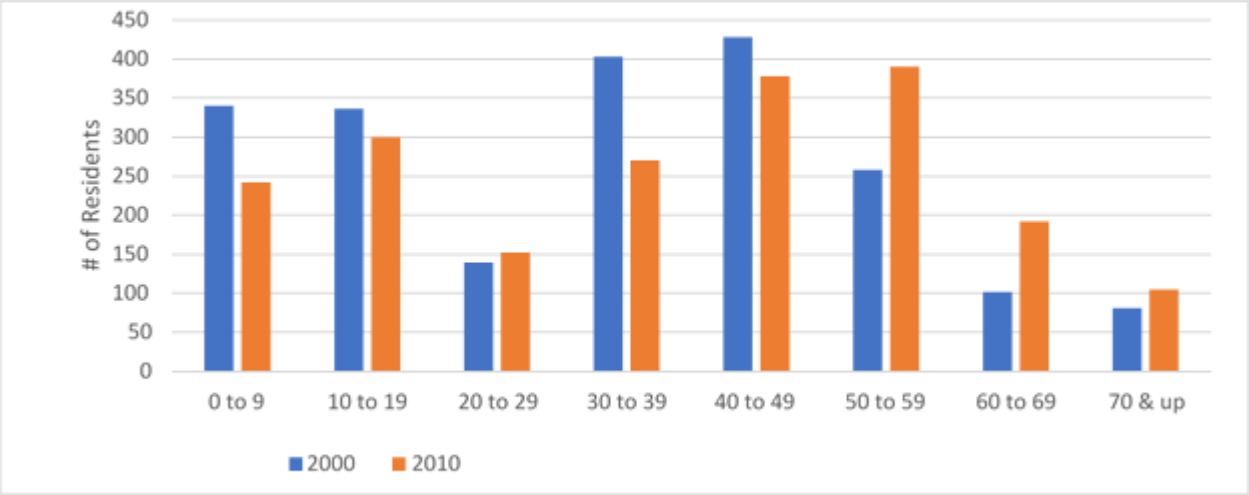
The age distribution of the population is shown below.

Table 5. Age Distribution in Westford

Age Range	# of People	% of Population
0 to 9	242	11.9
10 to 19	300	14.7
20 to 29	152	7.4
30 to 39	270	13.3
40 to 49	378	18.7
50 to 59	390	19.2
60 to 69	192	9.5
70 & up	105	5.1
Source: US Census, 2010		

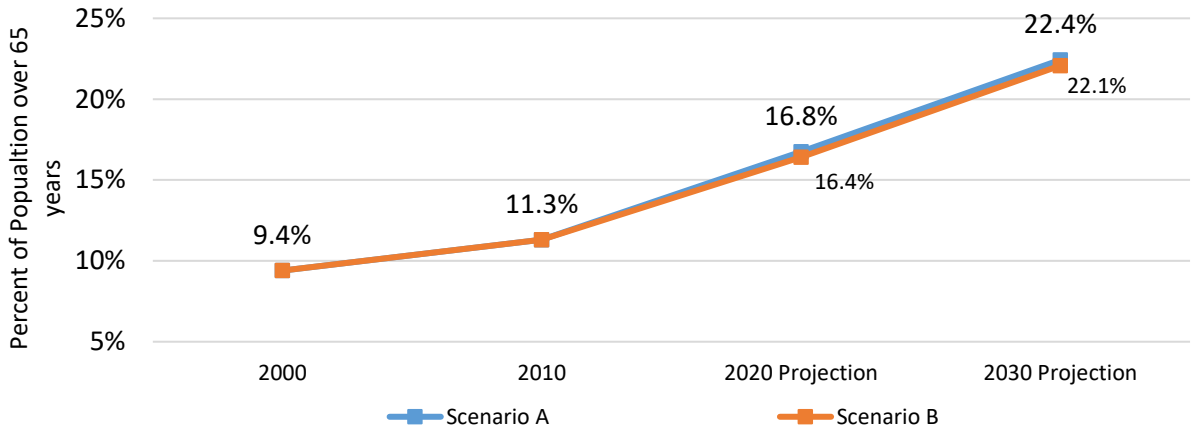
The 2010 U.S. Census Bureau report on population growth in Westford shows that the 0 to 19-year-old population decreased and the 50-year-old and over population increased from 2000 to 2010. It is expected that the population of individuals 19 or younger will stabilize over the course of the next 15 years and the senior population will increase dramatically (See Figure 3). Future demographics will play an important role in determining which projects and services the Town plans for and implements.

Figure 2. Age Distribution in Westford



Source: US Census, 2000 & 2010

Figure 3. Chittenden County Projected Population Over 65 Years



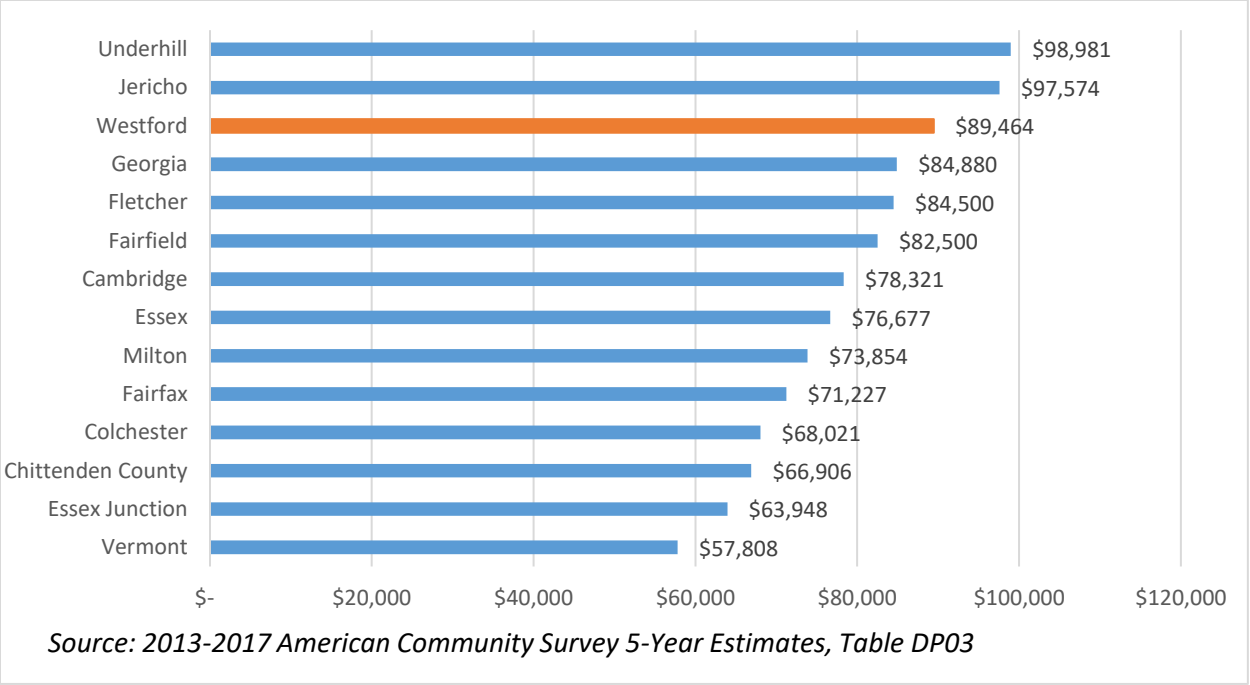
Source: Vermont Agency of Commerce and Community Development

Household income is also reported in the 2017 American Community Survey. The following table and figure illustrate median income and income distribution for Westford and the surrounding area.

Table 6: Median Household Income

Vermont	$ 57,808
Essex Jct.	$ 63,948
Chittenden County	$ 66,906
Colchester	$ 68,021
Fairfax	$ 71,227
Milton	$ 73,854
Essex	$ 76,677
Cambridge	$ 78,321
Fairfield	$ 82,500
Fletcher	$ 84,500
Georgia	$ 84,880
Westford	$ 89,464
Jericho	$ 97,574
Underhill	$ 98,981
Source: 2013-2017 American Community Survey 5-Year Estimates, Table DP03	

Figure 4. Local & Regional Median Household Income, 2017



Source: 2013-2017 American Community Survey 5-Year Estimates, Table DP03

According to the 2017 American Community Survey, approximately 2% of the total population of Westford lives below the poverty line. This percentage is well below that of Chittenden County and Vermont as a whole. This estimate has high margins of error associated with it and should be used with caution. The percentage of students eligible for free or reduced lunch at Westford School is less than half the statewide percentage.

Table 7. Students Eligible* for Free or Reduced Lunch, 2017-2018 School Year

Westford School	18%
Vermont	41%
Source: Vermont Department of Education Free and Reduced Lunch Eligibility Report *To be eligible for free or reduced lunch, a child's family must meet the federal definition of low income for the Burlington-South Burlington Metropolitan Statistical Area. For a family of four, this means an annual income up to $65,700.	

3.2.2 Housing

Housing is an essential component of any community. The type, cost, distribution and location of housing impacts the social make-up and physical appearance of a community. Housing provides many benefits to a community, such as providing shelter to its residents, creating a customer base for local businesses, and serving as the focal point for family and community life. On the other hand, housing also places demands on public services and if built or placed inappropriately, can negatively impact natural resources. Planning for housing requires the consideration of many factors, including the type, cost, and location of new development.

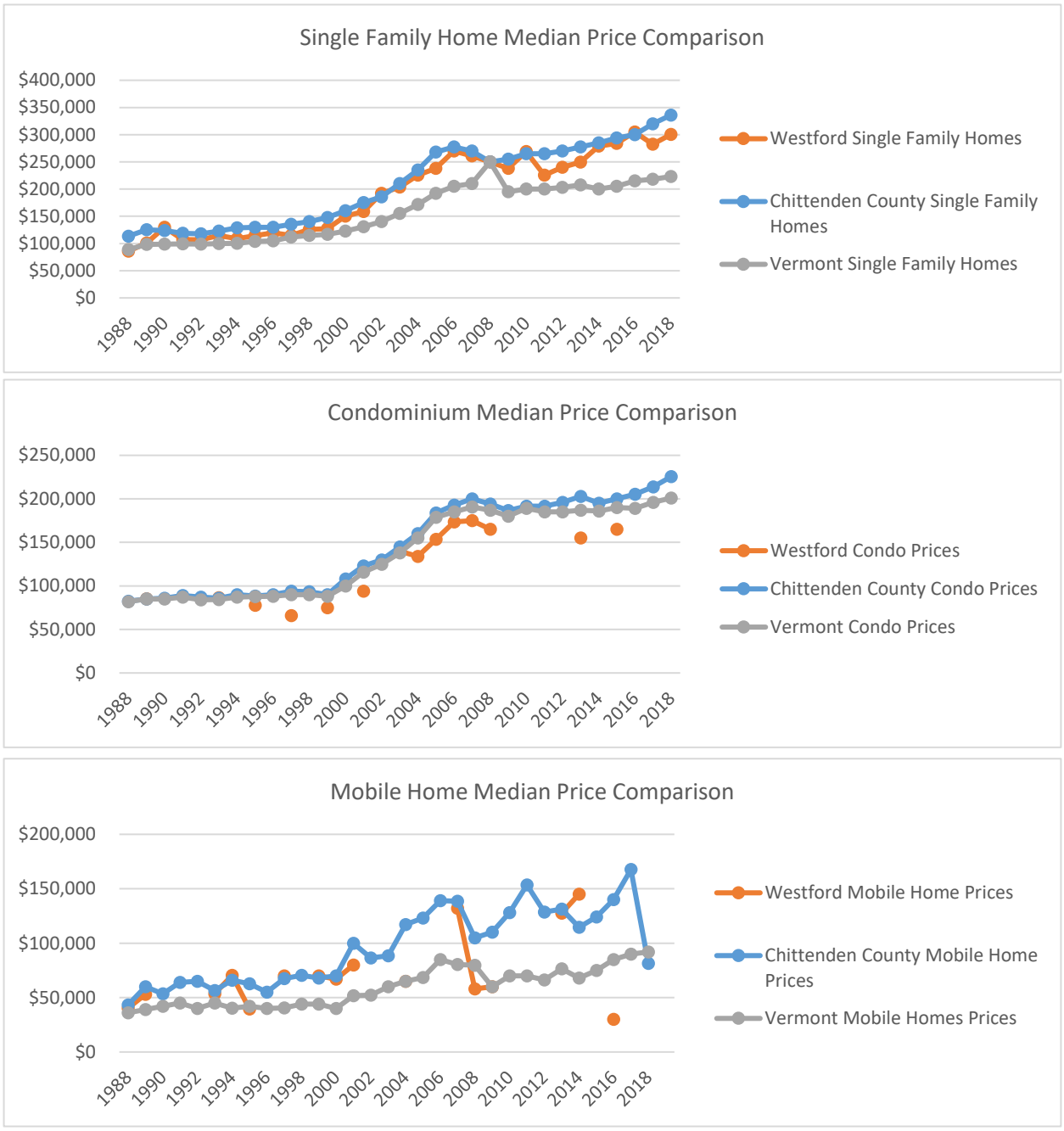
3.2.3 Westford's Existing Housing Stock

Westford's existing housing stock consists primarily of detached, owner occupied units. According to the 2017 American Community Survey, there are an estimated 780 housing units in Westford, 96% of which are occupied. Of the occupied housing units, the American Community Survey estimates that 91% are owner occupied and 9% are occupied by renters. Similarly, an estimated 90% of existing housing units are detached single family homes.

Housing costs in Westford have climbed rapidly since the late 1990's, peaking at the median price of $305,000 for a single-family home in 2016. The median price dropped slightly to $300,500 in 2018, though it still represents a significant increase in the cost of housing since 1998, when the median sales price for a single-family home was $126,000.

The median sale price for a home varies widely depending on the type of housing. For example, in 2013, the median sale price for a single-family home in Westford, excluding condominiums, was $249,500, the median sale price for a condominium was $155,000 and the median sale price for a mobile home with land was $127,500. Housing prices in Westford generally follow the trends of housing prices in Chittenden County.

Figure 5. Median Sale Price for Housing, 1988-2018



Source: Vermont Department of Taxes Property Transfer Tax Data from HousingData.org

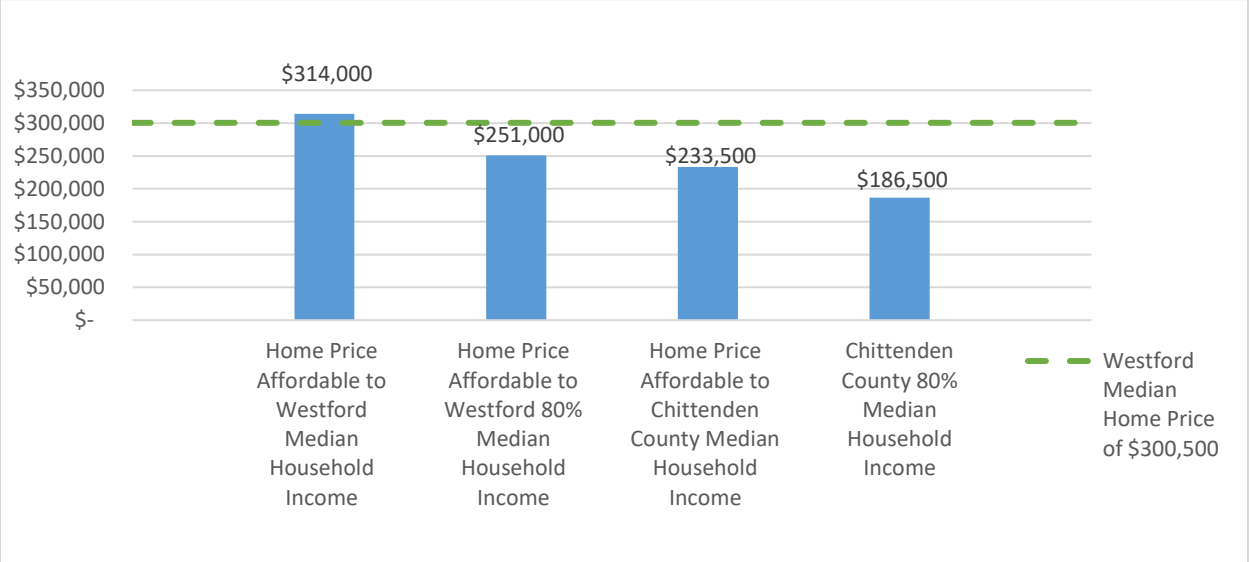
3.2.4 Housing Affordability

Housing is considered affordable to a given household when no more than 30% of the household's annual income is spent on housing expenses. Housing expenses for renters include rent and utilities. Housing expenses for homeowners include mortgage payments, property taxes, insurance, and association fees (if applicable.) In 2018, the median home price in Westford was

$300,500. A household would need an income of $85,061 to afford a median priced Westford home. The median household income in Westford is $89,464. A household with this income could afford the median home price in Westford. However, in Chittenden County, the 2017 median household income was $66,906. This means that a household making this income could not afford to move to Westford and buy home at the median price.

Further, it means that there is a lack of affordable housing in Westford. "Affordable housing" means housing that is affordable to a household earning 80% of median income or less. 80% of median household income in Westford is $71,571. 80% of median household income in Chittenden County is $53,525. The median home price in Westford is not affordable to either of these median households.

Figure 6. Home Affordability in Westford



Source: Vermont Housing Finance Agency's Affordable Home Price Calculator

3.2.5 Residential Development Options & Incentives

The availability of affordable and modestly priced housing is a problem not confined to Westford; all communities in Chittenden County are grappling with this issue. While the issue is regional in scope, there are several steps Westford can take to expand housing options within the Town.

In addition to housing affordability, housing type is an important consideration. For example, as Westford's population continues to age, some residents may find that they can no longer maintain large amounts of land. There are currently no designated senior housing options in Westford. Senior housing is defined as housing that is specifically designed and designate for residents 55 years of age of older. Others, such as unmarried individuals and young families wishing to reside in Westford, may not need or want a large single-family home at this stage in their lives. A variety of housing types, including single family homes, two family dwellings, multifamily housing, and senior housing provide an opportunity for a wider range of people to live within a community, regardless of income.

In 2016 the Town unified the regulations in order to encourage a wide variety of housing types. The current Land Use and Development Regulations allow two family homes in all zoning districts and Westford is seeing a growing interest in the construction of two-family homes. Throughout Town, residential housing, including senior, multifamily, and congregate housing, is now governed by the number of principal structures per minimum lot size as opposed to the number of dwellings per minimum lot size. This allows for more units to be located on a parcel than would otherwise be allowed based on a traditional unit to lot basis. It is worth noting that multi-family attached dwellings, inherently more energy efficient and affordable than most single-family detached dwellings because of denser housing and shared common areas, can achieve higher energy efficiency and cost savings.

The Town also amended the regulations to encourage the creation of affordable, senior, small, energy efficient and accessible units by granting density bonuses as an incentive. The Town actively encourages developers to take advantage of this bonus.

Based on State Statute, homeowners can construct accessory dwellings (frequently referred to as "in-law apartments") on properties with single family homes. Accessory dwellings are an innovative way to grant homeowners space within their home, or on their premises, to house parents or adult children and/or provide supplemental rental income. Additionally, accessory dwellings represent an opportunity to create additional housing in Westford without developing valuable natural areas. Accessory dwellings are a key component to allowing older residents to "age-in-place". The current Land Use and Development Regulations provide a great deal more flexibility for accessory dwellings. This change was made in part due to resident interest in this type of housing.

Another incentive program the Town has taken advantage of is the State of Vermont Neighborhood Development Area designation. In 2019, the T5 Form Based Code Overlay District in the Common Zoning District was designated a Neighborhood Development Area. This designation provides relief from Act 250 jurisdiction, State permit fees and certain State taxes for projects located within the Neighborhood Development Area. The Planning Commission and Selectboard will pursue designating the full Common Zoning District and investigate designating portions of the Village Zoning District as a Neighborhood Development Area.

To further the cause, the Town will endeavor to work with local affordable housing providers to further the development of housing that serves a broad spectrum of needs. Developing municipal wastewater in the Town Center Area will allow for the development of diverse housing options. Furthermore, affordable housing may also be encouraged through the Town's fee structure by reducing or waiving fees for units of affordable housing. Lastly, the Town realizes the impact of transportation costs to finding affordable housing. Affordable housing should take into consideration the cost of commuting to employment and services. The availability of public transportation and/or locating essential services in Town is key to establishing and maintaining affordable housing in Westford. Please see Chapter 6 for further discussion. The Planning Commission will continue to actively work to address the housing option and affordability crisis facing Vermont.

3.2.6 Labor Force and Economy

Westford has a well-educated workforce, with 93.7% (+/-2.6%) of the population over 25 holding a high school diploma or a higher level of education, and 43.9% (+/-5.8%) holding a bachelor's degree or higher (American Community Survey 5-Year Estimates, 2013-2017).
The Vermont Department of Labor reports that the number of places of employment in Westford increased from 41 to 51 between 2015 and 2018. The majority of businesses in Westford are in higher-paying service providing industries rather than goods-producing industries. However, the Department of Labor only reports "covered employment" (businesses subject to the Vermont Unemployment Compensation Law), which excludes some jobs, most notably many people who work for themselves and most farm jobs. Specialty agricultural businesses and hobby farms are found throughout Town. The Town plans to foster the development of agricultural and silvicultural operations and encourage the conservation of land as a means of becoming a more sustainable community.

Table 8. Employers in Westford

	2008	2013	2018	2018 Average Wages
Governmental Entities	3	3	3	$43,959
Goods Producing Businesses	10	12	17	$41,364
Service Providing Businesses	27	22	31	$53,115
Total Entities	30	37	51	$47,587
Source: Vermont Department of Labor, Economic & Labor Market Information, Covered Employment and Wages (QCEW)				

Unemployment rates in Westford have been similar to those in Chittenden County for the last ten years, and lower than those for Vermont as a whole. Unemployment reached its highest point during the recession in 2009 and has declined since.

Underemployment is a useful statistical measure that includes both the traditional measure of unemployment (those who are unemployed and actively looking for work), and additional measures including discouraged workers (who have stopped their active search for employment), and those who work part time but prefer to work full time. This is measured only at the state and national levels, where it has tended to be roughly twice the unemployment rate.

Table 9. Unemployment and Underemployment

	Westford Unemployment	*Chittenden County Unemployment*	*Vermont Unemployment*	*Vermont Underemployment*
2008	3.10%	4.00%	4.70%	9.10%
2009	4.40%	5.60%	6.60%	11.80%
2010	3.40%	4.80%	6.10%	12.50%
2011	2.90%	4.20%	5.50%	11.60%
2012	2.70%	3.80%	5.00%	11.00%
2013	2.50%	3.40%	4.40%	9.30%
2014	2.50%	3.00%	4.00%	8.80%
2015	2.60%	2.70%	3.60%	8.20%
2016	2.40%	2.50%	3.20%	7.10%
2017	1.70%	2.30%	3.00%	6.40%
2018	1.60%	2.10%	2.70%	5.70%

Source: Vermont Department of Labor, Economic & Labor Market Information, Labor Force and Unemployment; US Bureau of Labor Statistics, Local Area Unemployment Statistics

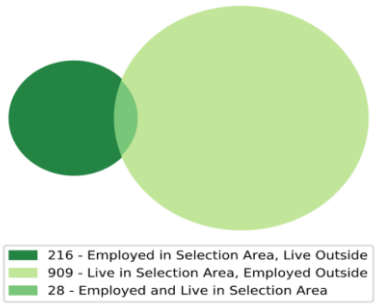
There are two sizeable businesses in Westford and numerous small, home-based enterprises. It is likely that more of these small businesses will continue to develop in Westford. (See Chapter 5 for additional Economic Development discussion.

75.6% of Westford residents (1,189) participated in the labor force in 2017, higher than the national rate of 62% and the statewide rate of 55%. The Vermont Department of Labor reports that there are 244 jobs (covered employment only) in Westford. The vast majority of Westford residents work outside of the Town. The US Census Longitudinal Employer-Household Dynamic program reports that 97% of primary jobs held by Westford residents are located outside of the town, largely in the Burlington metro area (see Figure 7).

Figure 7. Location of Primary Jobs Held by Westford Residents

Source: US Census Longitudinal Employer-Household Dynamics, 2015

Figure 8. Westford Employment Inflow-Outflow



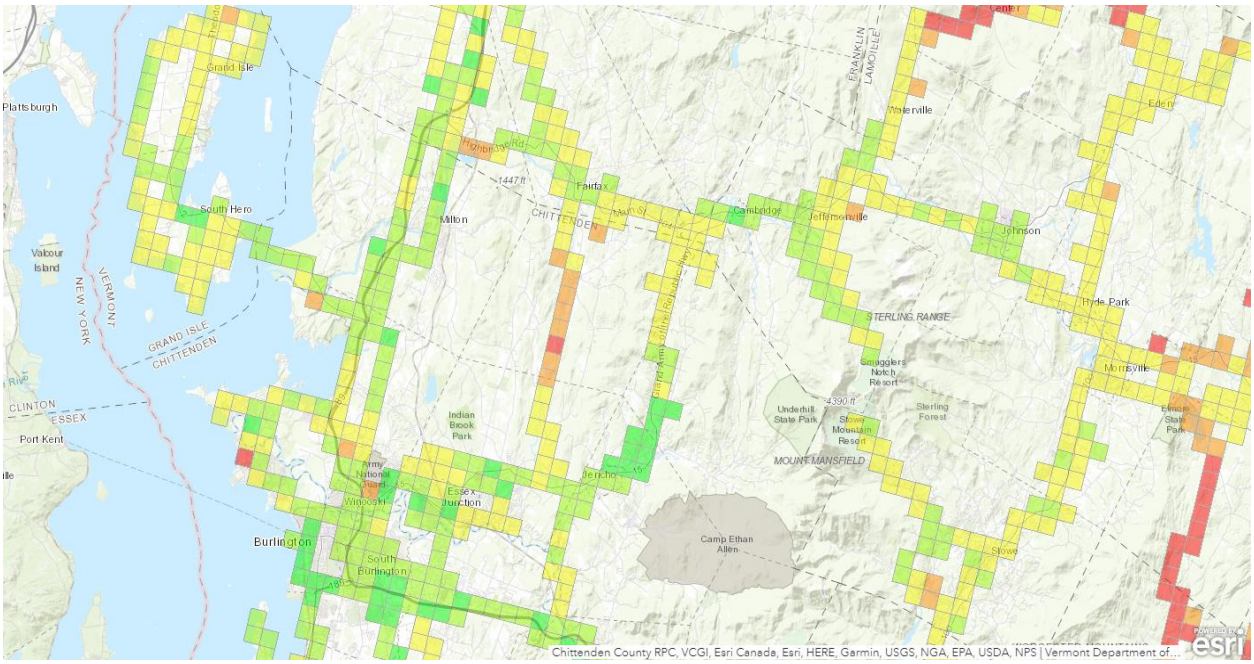
Source: US Census Longitudinal Employer-Household Dynamics, 2015

Reliable and fast broadband internet access is essential to economic productivity for all businesses and for those who work from home. The Federal Communication Commission defines access to broadband internet as being served by 25/3 Mbps or faster (an internet connection with minimum download speeds of 25 megabits per second and minimum upload speed of 3 megabits per second). In Westford, 87% had access to broadband internet as of December 2018, leaving 13% without. This metric measures the buildings in areas served by broadband technologies, such cable television lines. It does not measure whether a building has paid for access to those lines.

Table 10. Broadband Internet Access, 2018

	Served 100/100 Mbps or Better	***Served 25/3 Mbps or Better***	***Served 10/1 Mbps or Better***	***Served 4/1 Mbps or Better***	***Underserved***
Westford	*0%*	*87.0%*	*89.0%*	*96.00%*	*3.00%*
Chittenden County	*20.50%*	*93.40%*	*94.00%*	*98.40%*	*1.60%*
Vermont	*13.40%*	*73.10%*	*79.60%*	*93.10%*	*6.90%*
Source: Vermont Department of Public Service, Broadband Statistics Summary by Town as of 12/31/18					

The Department of Public Service conducted a drive test of mobile wireless coverage in Vermont in the Fall of 2018 because they believed the coverage was not as complete as the service providers were claiming to the Federal Communications Commission (FCC). The test drive did prove that coverage was less than claimed, and the Department of Public Service was able to demonstrate that "good cause exists to expand the territory in the state that is deemed eligible for forthcoming federal grants" to improve coverage. The results can be seen in this online map, and the methodology is in the resulting Mobile Wireless in Vermont, January 15, 2019 study. The Town should be proactive about improving cellphone coverage throughout town with emphasis on the Town Center Area.



No service, text, voice, and data not available

Spotty service, under 256 kbps, text may be possible, voice not likely

OK service, up to 5 Mbps, voice, text and email likely, web browsing may be possible

Good service, 5 Mbps to 10 Mbps, voice, text and web browsing likely, streaming may be possible

Great service, more than 10 Mbps, voice, text and video streaming likely

3.2.7 Existing Land Use

Westford is predominantly a rural bedroom community. Most of the adult residents in the workforce commute to work out of town. Lack of sewer or water service in the Town Center Area hinders growth in the Town Center Area. There are a total of 25,038 acres of land in Westford and a population of approximately 2,029. This translates to a density of approximately 13 acres per person.

Westford's rural character has been formed primarily as a result of traditional Vermont development patterns, which included a significant agricultural sector and the development of the Town Center Area. This has resulted in low density residential and agricultural uses and an abundance of open land dispersed along existing roadways. Based on the results of the both the 2009 and 2019 community surveys, the preservation of Westford's rural character is extremely important to residents, particularly open space, farmland, and forests.

While Westford has seen recent growth in small farming operations, this is not likely to result in the preservation of a large amount of land, traditionally associated with larger working farms. Unfortunately, the trend is towards a gradual reduction in the number of large working farms in both the region and Westford. Because of this trend, Westford has changed from an agricultural community to a rural bedroom community, which can create more of a challenge in meeting the Town's goal of preserving the Town's rural character.

Every year, the Town updates its parcel data with the thought that the data will help Town officials better understand the total number, distribution, and arrangement of parcels. In 2008, there were a total of 1066 parcels in Westford, up from 924 in 1992 and 747 in 1985. It is apparent from the data below shown in Table 11 that the potential exists for significant additional subdivision activity in Westford. The following table illustrates parcel breakdown by size, number, and total area in Westford.

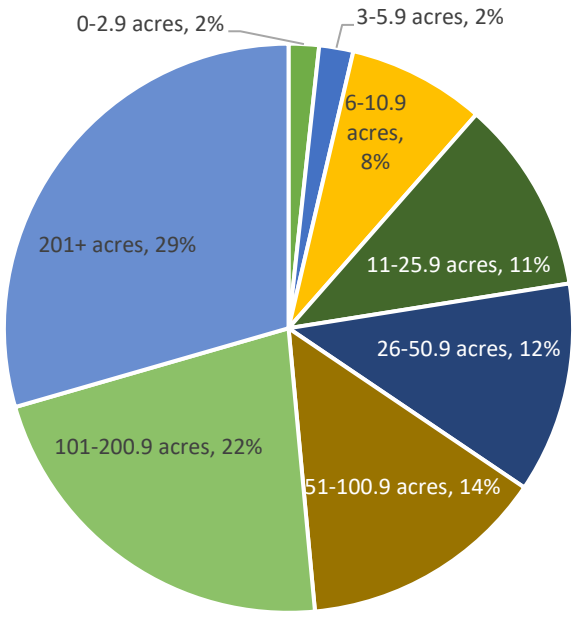
This data is obtained by the Town of Westford Lister's Office, who combine adjoining parcels for tax purposes.

Table 11. Parcel Size Distribution

Parcel Size Acres	# of Tax Parcels	Total Area	% of Area
0-2.9	314	432	2%
3-5.9	115	485	2%
6-10.9	208	1955	8%
11-25.9	171	2758	11%
26-50.9	81	2998	12%
51-100.9	50	3521	14%
101-200.9	40	5513	22%
201+	24	7379	29%
TOTAL	1003	25041	

*Includes right of ways
Source: CCRPC GIS and Westford Digital Parcel Maps, 2019

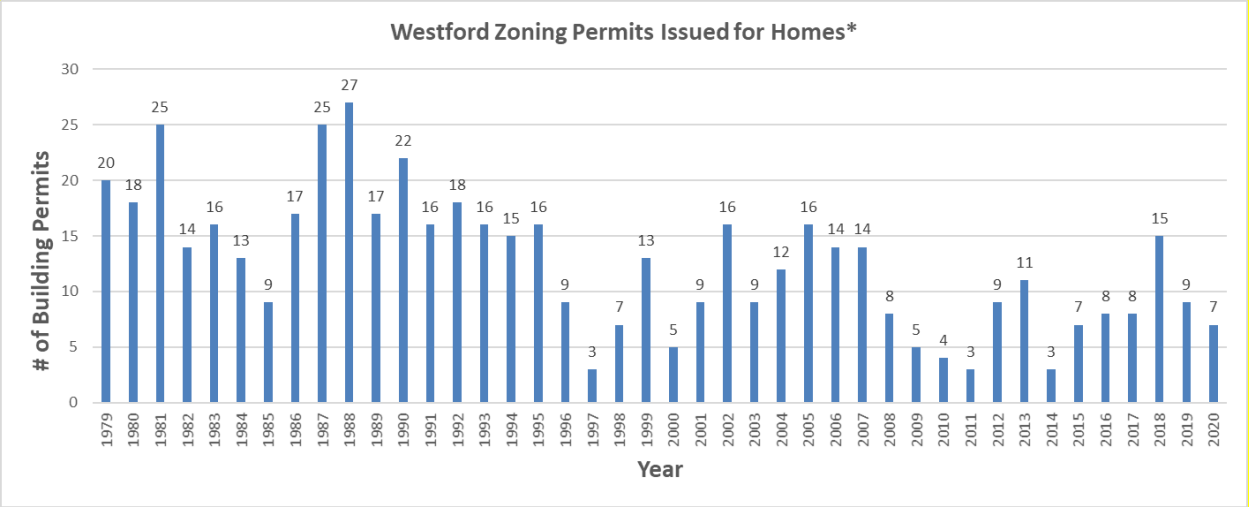
Figure 9. Land Area by Parcel Size Distribution



Source: CCRPC GIS and Westford Digital Parcel Maps, 2019

The Town saw a rise in new home construction during the 1980's and early 1990's. This corresponded with the growth of IBM, Inc. (now GlobalFoundries) located in Essex. Furthermore, a small, yet substantial, increase in new home construction occurred in the early 2000's prior to the Great Recession. Figure 10 shows the number of zoning permits issued for new homes from 1979-2020. A small increase in zoning permits has been seen in recent years.

Figure 10. Westford Zoning Permits Issued for Houses*



* Generally single family dwellings; however, the data may include some replacements. Following 2016, the data include accessory dwelling units.
Source: Town Reports

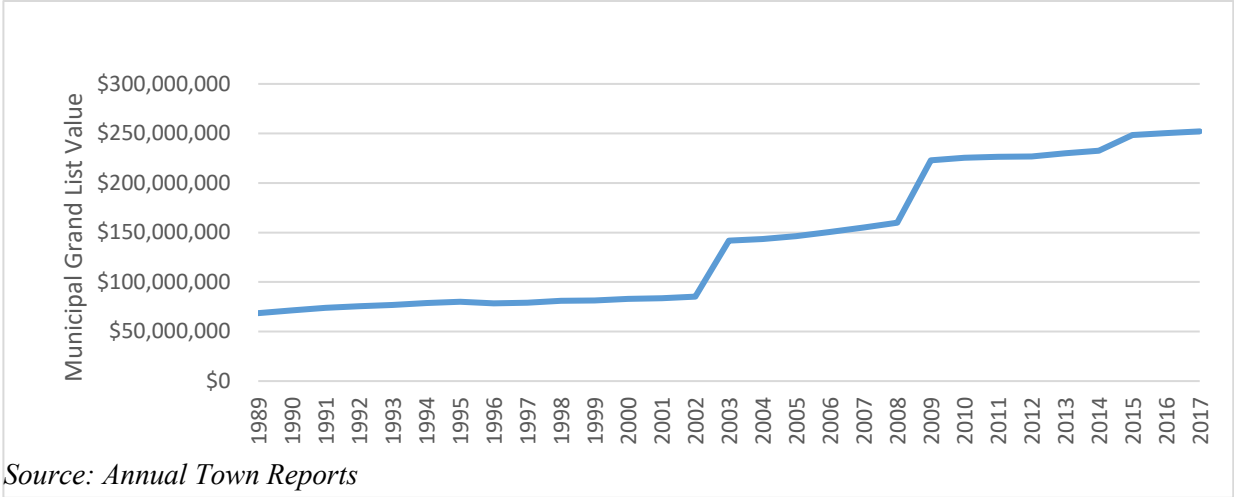
The Town's grand list represents the total listed value of real estate and personal property, minus public utilities/infrastructure, farm stabilization, current use, and veteran benefits. Westford's grand list increased 180% from 2000 to 2014 (See Table 12). The large increase since 2000 is due to a town-wide reappraisal conducted in 2003 and another in 2009, which brought property valuation much closer to fair market value. Prior to 2003 the last reappraisal was conducted in 1989.

Table 12. Westford Grand List 1989-2017

Year	Municipal Grand List Value
1989	$68,586,539
1990	$71,423,084
1991	$74,052,223
1992	$75,521,501
1993	$76,951,261
1994	$78,833,815
1995	$80,245,235
1996	$78,496,314
1997	$79,232,580
1998	$80,944,708
1999	$81,421,098
2000	$83,111,061
2001	$83,656,289
2002	$85,115,268
2003*	$141,665,226
2004	$143,494,902
2005	$146,439,957
2006	$150,610,182
2007	$155,075,583
2008	$159,881,632
2009*	$222,749,050
2010	$225,347,650
2011	$226,307,550
2012	$226,769,700
2013	$229,876,000
2014	$232,693,100
2015	$248,251,600
2016	$250,325,600
2017	$252,093,100

Source: Town Reports
**reappraisal year*

Figure 11. Municipal Grand List, 1989-2017



Source: Annual Town Reports

3.3 Population, Housing & Existing Land Use Goals & Objectives

1. **Growth & Services** - Ensure a pattern of residential growth compatible with Westford's rural character and a rate of growth that does not outstrip the Town's ability to provide necessary services.

2. **Growth & Natural Resource Protection** - Facilitate the dual objectives of allowing residential and nonresidential development while conserving working lands, open spaces, and significant natural resources.

3. **Diverse Housing *Options*** - Encourage diverse housing options (including accessible, senior, affordable and entry level housing) and work to ensure the availability of safe and affordable housing for all Westford residents.

4 FACILITIES, UTILITIES & SERVICES

4.1 Policy

It is the policy of the Town of Westford, in the interest of stabilizing the tax rate and ensuring the most efficient use of tax revenue and staff time and energy, to plan for community facilities, services and capital expenses. The Town will strive to provide adequate services to all Town residents and to direct future growth to ensure that services to existing residents are not compromised or their quality reduced. The Town will strive to have new growth pay its proportionate share of the cost of Town services and facilities.

4.2 Inventory & Discussion

4.2.1 Cemeteries

There are seven cemeteries in Westford: Cook Yard, Richardson, Osgood Hill, Plains, Cloverdale, Brookside and Pleasant View. See Town Plan Map 7 for locations.

Brookside Cemetery was transferred to the Town of Westford in June of 2015 and Pleasant View Cemetery was transferred to the Town of Westford in February of 2020. As a result, all seven cemeteries are now under the management of the Westford Cemetery Commission. Under Vermont State Law, towns are responsible for cemetery upkeep.

Cook Yard, near the intersection of Cambridge Road and Covey Road, is a very small lot that was overgrown with brush and trees. Only 3 markers are visible in this cemetery. An ongoing project of the Historical Society and Cemetery Commission is to keep the immediate area clear brush and overgrowth. A sign has been placed to identify the cemetery and the 3 gravestones will be restored in the near future. At the present time, the adjacent landowner also assists with maintenance of the cemetery. No additional use is contemplated.

Richardson Cemetery, located on Covey Road near the intersection of Old Number 11, contains 18 graves. Burials date from 1805 to 1881. Thanks to the Friends of Richardson Cemetery, the cemetery has been restored and continues to be maintained. All plots have been sold and no additional use is foreseen.

Osgood Hill Cemetery, located on Osgood Hill Road, has 195 graves and very limited space for future burials. The cemetery is still in use and is in good physical condition. Many of the gravestones underwent cleaning and restoration in 2019 and 2020. It should be noted that several unmarked graves have been documented at this site.

Cloverdale Cemetery, located in the eastern part of Westford between Underhill and Cambridge on Route 15, has approximately 230 graves dating from 1805 to the present. There is limited space for future burials. Furthermore, use of this cemetery is dangerous due to lack of on-site parking.

Plains Cemetery, located on Plains Road, contains 250 graves dating from 1815 to the present. There is a small area remaining for future burials.

Brookside Cemetery, located on Maple Tree Lane, is one of the oldest and largest cemeteries in Westford with graves dating from 1800 to the present. There are approximately 720 graves and a large area exists for future burials. In 2018, cleaning and restoration of the gravestones in this cemetery was completed.

Pleasant View Cemetery, located on Route 128 north of Westford Village, is also a spacious cemetery with over 523 graves and approximately 200 plots available for future burials. The earliest known burial at this site occurred in 1794.

In addition to cleaning and restoring portions of cemeteries each year, gravestones will be monitored for damage caused by frost and other unforeseen circumstances and repaired as needed. The Cemetery Commissioners have held Spring Workdays the past two years to remove overgrowth along the boundary lines of two of the cemeteries. Commissioners hope to continue this work on an as needed basis.

4.2.2 Fire Department

The Westford Volunteer Fire Department was founded in 1982 and is an all-volunteer force with between 10 and 20 members and is housed in a portion of the Town Garage. The department maintains a fleet of vehicles and a variety of highly specialized firefighting and vehicle rescue equipment. The department maintains formal arrangements with other local fire departments to provide mutual aid, as necessary. The Westford Fire Department is a duly constituted non-profit corporation that provides services to the Town on an annual fee-for-service basis, which means the Town funds the Westford Fire Department in return for services. The fire department is supported by the Town's budget and by private fundraisers and donations.

New development in Westford has necessitated fire department coordination with the Planning Commission, Development Review Board and Administrative Officer to ensure adequate water supplies and road widths in new developments to allow passage of heavy equipment, and adequate access to dwellings and structures for the easy provision of emergency services.

4.2.2 Library

The Westford Public Library was established in 1895 and currently occupies the original Town Hall building built in 1844. It has been at its present location since 1974. The building is eligible for the listing on the National Register of Historic Places. Serious renovations started in 2002 with the replacement of the slate roof, furnace, carpeting, electrical wiring, light fixtures, shelving, and furniture. In 2008, the building was insulated, re-sided and painted. A parking lot was constructed on the north side of the building to provide safe and convenient parking for its patrons in 2013. In 2015, a heat pump was installed to provide electric cooling and heating, in addition to oil heat. In 2019, a new ramp, porch and steps were constructed outside the building. The majority of renovations are complete, and any further work will be done as the need arises and monies become available.

The Library provides access to materials, technology (including free internet access), and programs to meet the informational, educational, and recreational needs of the Westford community. It serves as a common area for the community to meet and discuss issues, provides information and resources for personal growth opportunities, and promotes cultural awareness and understanding. The library has strong and successful programming for children and their families. Through the

well-attended summer reading program, the library is able to encourage children to read and explore new ideas during the summer.

The Librarian and the Board of Trustees continue to work on providing for the evolving needs of the community. The current long-range plan will guide operations through 2024. The Library has completely automated its collection and continues to develop the collection and programs to provide for the general information and life-long learning of the community. The Librarian and Trustees' focus is on increasing the number of participants in programs and events, increasing the usage of social media for better communication and fostering collaboration between the library and other groups in town, especially the school." to " The Library, through its physical and digital collections and programming, continues to provide for the general information and life-long learning of the community. The Librarian and Trustees' focus is to be a center for the community, provide a diverse and varied collection, and foster community connections through collaboration and participation with Westford stakeholders. Our goal is to have residents of all ages have convenient, easy, and varied ways to access library services and resources.

4.2.3 Post Office

The Westford Post Office was moved from the Town Common to a location north on Route 128 in 1988. The location of the Post Office outside of the Town Center Area has detracted from the sense of community that was once felt when the Post Office was located around the Common and residents could walk from there to the Town Offices or Westford Public Library. People currently must walk to the Post Office along the narrow and dangerous section of Route 128 connecting it and the Common. It would be in the interest of residents if the Post Office were relocated back to the Common and expanded its hours of operation. Better pedestrian links from the Town Center Area to the current location are not feasible at this time.

4.2.4 Town Common

The Town Common has long been a focal point for the Westford community since the early 1800's. Early in its history, roads and paths connecting a variety of businesses and residences crisscrossed the Common. For some time, it served the community as a large, contiguous green space. Unfortunately, poor drainage hampered how it could be used and made tree planting difficult. All of this changed in the mid 1990's thanks to generous donations by Henrik Kruse. Thanks to Mr. Kruse's donations and efforts, extensive drainage was installed in 1994, and a permanent post and beam pavilion was constructed in the center of the Common in 1995. These continued efforts resulted in a completely revitalized Common with tree and shrub plantings, benches, a swing set, and a level area used for an outdoor skating rink in the winter. In 2014, the University of Vermont Village Green Initiative stated "The Town of Westford is one of, if not the best candidate for a quintessential New England village green". In 2018, the Common Road, a historic path running through the Common was established as a four rod public road and the land located south of Common Road was conveyed to the property owners, thereby granting them ownership of their front yards or dooryards. In 2018, the Selectboard adopted a mobile food vendor ordinance for the Common Area and placed a porta-let on the Common during the non-winter months. In 2019, a crosswalk was installed connecting the Town Offices to the Common. In 2020, a general store and cafe was constructed adjacent to the Common and a public Wi-Fi area was established. These developments have dramatically increased the public's use of the Common. It is also used for a wide variety of community events and activities such as:

outdoor skating, annual July 4th celebration, summer concerts and ice cream socials, recreation department activities, outdoor summer library programs, and general recreation space for all ages. Residents have expressed a desire to maintain the Town Common as a contiguous public green space. The Town's intent is to maintain permeable surfaces except as needed to provide accessibility. The Town does not want to decrease the amount of green space.

The Common is the hub of the Town Center Area and Town in general. It is surrounded by multiple residential and municipal uses that include: Town Office, Westford Public Library, Brick Meeting House and Westford Common Hall. Public amenities and facilities should be located within the Common District in order further solidify the Common Area as the center of community life.

4.2.5 Recreation

Recreational opportunities abound in Westford, especially outdoor activities that take advantage of Westford's abundant natural resources. Snowmobiling, ice skating, hiking, cross-country skiing, horseback riding, hunting, fishing, mountain biking and road walking/running are popular activities in town.

The network of town roads (particularly dirt roads) and trails contribute greatly to these recreational activities, and as such serve the community for far more than just transportation. The Westford School property, Misty Meadows Trails and Forest property surrounding the school and the newly acquired Maple Shade Town Forest located across the road have an extensive, interconnected trail network which is maintained by the Conservation Commission. The Recreation Committee supported the purchase of grooming equipment, and thanks to volunteer efforts, the trails are groomed for cross-country skiing in the winter months.

Organized recreational activities are also available and help contribute to Westford's positive sense of community. The Selectboard created a volunteer Recreation Committee in 1997 and appointed a part-time Recreation Coordinator to help the Committee facilitate organized recreational activities and better utilize both Town and School facilities. Together, the Recreation Committee and Coordinator help provide numerous activities for children and adults alike in every season. Adult recreation programs and activities include basketball, soccer, futsal, paint and sip, the annual broomball tournament and sponsorship of the summer concert series on the Town Common. Sports programs for children include fall soccer, basketball, cross-country skiing, spring lacrosse, summer t-ball and soccer. Additional enrichment programs for children change over time and frequently include arts programs and summer sports camps.

School-sponsored sports programs generally are focused on children in the 7th grade or higher, which makes the Town-sponsored recreation programs even more important for families of younger children. These organized recreation programs offer children and adults a way to be active in their own lives and in the community and help build lasting connections with other residents throughout Westford.

Most organized recreational activities happen at either the Westford School or on/around the Town Common. The Town Common underwent extensive work to drain and landscape the land to provide a usable area for a variety of recreation uses for Westford residents, including the summer concert series, the winter broomball tournament mentioned above, and many other

events. Indoor events around the Town Common are typically held in the Brick Meeting House (a community space owned by the Westford Common Hall and leased to the Brick Meeting House Society for community use) thanks to cooperation between the Recreation Committee and the Brick Meeting House Society. The Westford School and adjoining Town property are the location of the Town's recreational fields. There are two soccer/lacrosse fields, a baseball field, a softball field and a tennis court with basketball hoops. The School property also includes two playground areas with swings and structures suitable children of all ages. The aforementioned trail system is well-marked and is used by the community throughout the year.

Over the last two years, the taxpayers have approved a modest annual amount of $6000 to the Recreation Department. This money has been spent on upgrading much needed recreation equipment, replacing the Nordic equipment, purchasing of new soccer and lacrosse uniforms, upkeep of the town skating rink and several much needed updating of sports equipment. Future expenses that the money will be used for will be new soccer goals, ongoing equipment replacement cost and funding of the part-time recreation coordinator salary.

Many new programs have been added over the last few years, including free activities to the youth of the town and events like the 5K Pumpkin Run which is increasing the amount of time necessary to run the department. The annual Broomball tournament is also a source of income to contribute to the funds to continue to run and develop programs over the years along with taxpayer approved funding.

Going forward for the next 5 years, the Recreation Committee would like to explore the development of the Town owned land on Westford Milton Road, which was given to the municipality with specific deeded rights for it to be used for recreational purposes only. This is a large chunk of land that is currently not in use and the Committee would like to see what potential it has for development. Ideas include new trails, athletic fields, campground, obstacle course, leasing for sugaring (income producing), and community center. The Committee is interested in seeing the potential that this property has, along with exploring public and private grants, and finding out what our community needs and what its interests are. The Recreation Committee is also working with the Conservation Commission and Trail Committee to explore the expansion of the Maple Shade Town Forest and Misty Meadows Trails and Forest trails to include multi-use, specifically broadening mountain biking availability.

The goal is to continue to provide local programming within Westford, meeting the needs of Westford's youth and adults, while minimizing the costs on taxpayers and residents.

4.2.6 Emergency Response Services

Call 911 for EMS, fire, and police assistance.

Westford has no local EMS service. In order to provide the residents with the fastest possible EMS response, the Town of Westford has contracted with two primary EMS service providers: Fairfax Rescue and Essex Rescue. Fairfax Rescue is the primary responding ambulance service in the northern half of Westford and Essex Rescue provides primary response in the southern half of town. The town is divided as follows for EMS E911 purposes:

Town of Westford (North End - Including Route 15 Corridor)

From the intersection of Old Stage Rd and Rogers Rd North (And Associated Roads), Intersection of Woods Hollow Rd & Orchard Lane North (And Associated Roads), Intersection of Brookside Rd & Chase Ln North (And Associated Roads), Intersection of Route 128 & Maple Ridge Ln North (And Associated Roads), Intersection of Osgood Hill Rd & Stony Ridge North (And Associated Roads), and Route 15 Corridor of Westford shall be the following response:

Primary Ambulance:	Backup Ambulance:
Fairfax	Essex

Town of Westford (South End)

From the intersection of Old Stage Rd and Rogers Rd South (And Associated Roads), Intersection of Woods Hollow Rd & Orchard Lane South (And Associated Roads), Intersection of Brookside Rd & Chase Ln South (And Associated Roads), Intersection of Route 128 & Maple Ridge Ln South (And Associated Roads), Intersection of Osgood Hill Rd & Stony Ridge South (And Associated Roads) shall be the following response:

Primary Ambulance:	Backup Ambulance:
Essex	Fairfax

Essex Rescue's medical direction is affiliated with the University of Vermont Medical Center in Burlington. Fairfax Rescue's medical direction is affiliated with the Northwestern Medical Center in St. Albans. However , in 2010 the Westford Selectboard designated the University of Vermont Medical Center (then Fletcher Allen Health Care) as the preferred facility for all Westford residents in instances where persons requiring transport either fail to request a specific facility or are unable to do so. This designation was made after a survey of Westford residents served by Fairfax Rescue was conducted and the responses received overwhelmingly requested that University of Vermont Medical Center to be the preferred facility for the Town in such cases.

There are two fire departments providing primary emergency response through Westford's E911 system. The Westford Volunteer Fire Department (WVFD) is the primary service provider for fire/rescue response throughout Westford, with the exception of the Route 15 corridor section of town and associated side roads. The Underhill Jericho Fire Department (UJFD) is the primary service provider for fire/rescue response in Westford's Route 15 corridor area. Two primary fire/rescue service providers have been established in order to deliver the fastest possible emergency service response time. The WVFD has to travel a long distance along Route 104 through Fairfax and Cambridge to reach the Route 15 corridor of town. The UJFD station is logistically much closer to this area of town and can therefore respond to 911 calls much more quickly there. It should also be noted that the Essex Fire Department is the secondary service provider in Westford if the Westford Fire Department volunteers are not available during business hours.

The Town of Westford does not have its own police department. The Vermont State Police is responsible for providing primary E911 law enforcement within the Town of Westford. The

Town of Westford contracts with the Chittenden County Sheriff for additional traffic and speed limit enforcement services.

In 2008, the voters granted the Selectboard the ability to appoint, rather than elect, a Town Constable, whose duties would be restricted to limited forms of local law enforcement. This position is currently vacant and not being advertised due to the law enforcement training required by state statute to carry out duties.

4.2.7 Emergency Planning & Preparedness

The Town has an appointed Emergency Management Coordinator. The Town has adopted a resolution designating the National Incident Management System (NIMS) as the basis for incident management. NIMS compliance standardizes the Town's incident management with state and national procedures; it also makes the Town eligible for certain state and federal disaster mitigation grant funds. The Town also has an All Hazards Mitigation Plan developed in 2017 in conjunction with the Chittenden County Regional Planning Commission, the purpose of the plan is to assist the Town in identifying all hazards (including flooding) facing the community and to develop mitigation strategies to reduce impacts of the identified hazards. The Town's All Hazard Mitigation Plan identifies winter storms, flooding, and fluvial erosion as the highest risk rating for natural hazards. The plan also identified a significant number of culverts, bridges, as well as critical facilities, located within the Flood hazard Overlay District. The 2017 All Hazard Mitigation Plan identified several actions the Town will look to implement through early 2022 to mitigate impacts of various hazards including flooding. The Town has an Emergency Operations Plan, which lists emergency contacts and is a NIMS requirement.

The Westford School has been designated as the Town's emergency shelter. The school has an identified capacity of 400 persons, has an emergency generator to provide power to support emergency shelter services, and is an American Red Cross certified shelter. In the event of an emergency requiring sheltering of residents, the Town would request that the American Red Cross open and staff the shelter.

The Town should develop a detailed set of procedures/chain of command to follow in the event of disaster as well as provide emergency preparedness information and instructions to the public.

4.2.8 Road Department

Westford public roads are maintained by a road crew currently consisting of four full-time employees and supervised by the Selectboard. The number of employees may change based on conditions and future needs. The road crew is responsible for maintaining all town roads under the State's Municipal Road Permit and water quality standards using equipment located at the Town Garage on Cambridge Road. The Highway Department works closely with the Chittenden County Regional Planning Commission to maintain an accurate and up to date inventory of road infrastructure to identify priority projects.

The Selectboard appoints a Road Committee whose duty is to develop, and amend as necessary, the 5-Year Road Report. The Road Report guides future maintenance, upgrades and replacement of Town roads, bridges, and culverts.

4.2.9 Schools

In November of 2015, the Town of Westford voted to merge its school district with the school districts of the Town of Essex Town and Village of Essex Junction. The vote followed many months of study by a planning committee. The state offered tax incentives for districts who voted to merge.

The new district, the Essex Westford School District (EWSD), began operation on July 1, 2017. The merger brought significant changes for high school students in Westford. All high school age students now attend Essex High School and transportation for high school students is provided from centralized pick up points. Students who were attending other high schools under school choice were grandfathered and allowed to finish their education at their chosen high school. There remains a very limited school choice law in Vermont that a very small number of Westford students take advantage of.

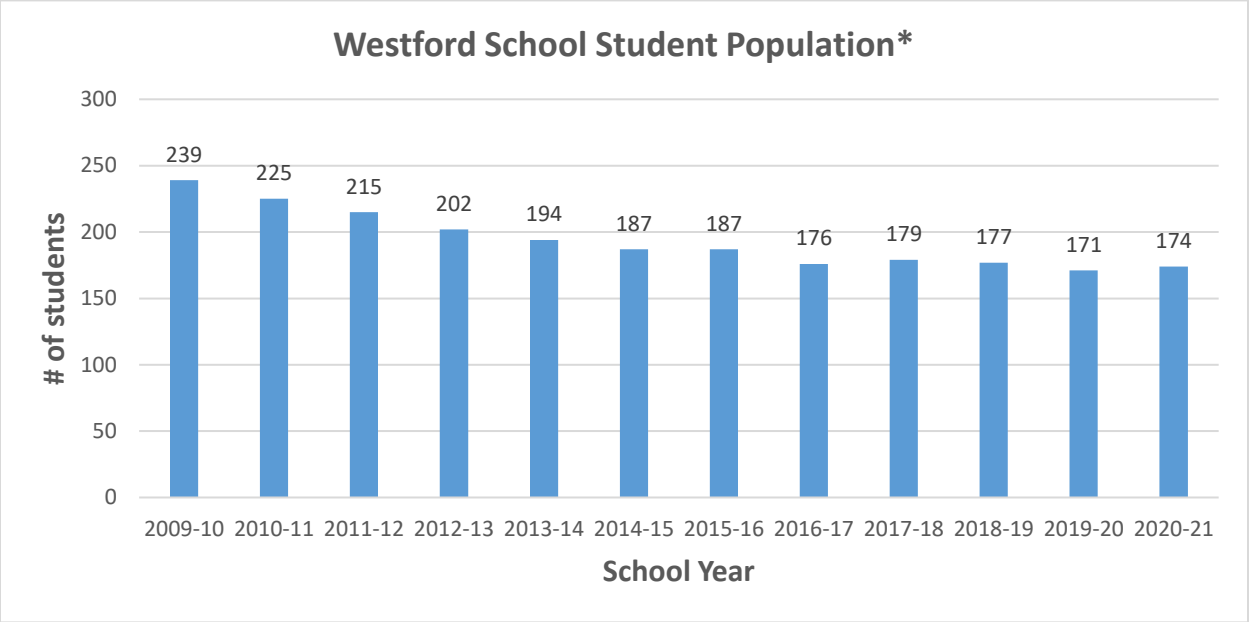
Prior to the commencement of operation of the new school district, the voters of the Westford School District voted to convey two parcels of land adjacent to the school to the Town of Westford for $1. The remaining parcel, consisting of the school building and approximately 14 acres of surrounding land, is now owned by the Essex Westford School District. Members of the Selectboard and the Schoolboard worked to create use agreements that allow students to use the town owned properties and vice versa. The community now has unfettered access to the trails near the school.

The EWSD is governed by a board of school directors. The board has 4 members elected by the voters in the former Town of Essex School District, 4 members elected by the voters of the Village of Essex Junction and two members elected by the voters of the Town of Westford. Due to laws regarding proportional representation, Westford's members have a half vote each. The board meets twice a month and its meetings are open to the public.

The Essex Westford School District's vision guides the work of the district; Growing hearts and minds, for a better today and tomorrow; every day, every way, every one.

Students who live in Westford attend school at the Westford School for grades K-8. Some pre-school age children also attend a district run program at the school. Westford's pre-K through grade 8 enrollment has leveled off at around 170 students. Westford School is one of 10 schools run by the Essex Westford School District. The total enrollment in the merged district is just under 4000 students. Current enrollment trends suggest that the full building will be needed for educational purposes for the foreseeable future and there are no current plans to close the school or reduce its footprint.

Figure 12.



*excludes foreign exchange, homeschooled and off-site students.
Source: Westford Essex School District Central Office

Westford School aged students are fortunate to attend school in a rural setting where they can take advantage of all that nature has to offer. The small community nature of the school gives students a strong foundation for their years beyond pre-K through grade 8 school. Parents and community members volunteer time to provide events and experiences that enhance the students' lives. A dedicated group of teachers and staff work tirelessly to provide an excellent education for Westford's children.

With regard to high education, University of Vermont, Northern Vermont University, Saint Michael's College, Champlain College and Community College of Vermont are accessible to Westford residents for online and in-person learning. It should also be noted that technological advances have expanded options and access to online educational opportunities for residents.

4.2.10 Child Care

The Town of Westford considers all of its citizens to be equally important components of the overall community and its future. Safe, reliable and enriching childcare is a key component to community health. In the Five Year American Community Survey Estimate for 2014-2018 based on the Census Bureau's Population Estimate Program, Westford had 132 children under the age of 5, equating to 6% of the population. Similarly, Westford had 397 children between the ages of 5-17, equating to 18.2% of the population. Many of these children have both parents in the workforce.

As of July of 2020, Westford has one home-based childcare program with a capacity for 8 children. The Westford School provides morning sessions of preschool four days a week. The Barn School also provides after school care to families who do not otherwise attend the private school. The Westford Recreation Department provides afterschool and summer recreational opportunities for children PreK-8th grade. Offerings vary from sports to art programming. The

Westford School Athletic Department provides after school athletic programs for 5th through 8th grade students.

The Westford Public Library has numerous resources, activities, and programs for Westford youths. The Library welcomes and provides a safe, healthy space for unattended children 9 years old and older. However, no public place, including the library, can guarantee the safety of an unattended child; it must be understood that the library does not act in *loco parentis* (in place of the parent) in these cases. The Library is on the Westford School's bus route. See the Westford Public Library's *Unattended Minor Policy* at http://westfordpubliclibrary.wordpress.com/ or contact the Westford Public Library for more information.

There is a strong need for quality care and early education. The Town has taken some steps to allow the provision of day care. The Westford Land Use & Development Regulations currently allow "nursery schools/day cares" as a permitted use in all districts.

In 2014 the Vermont State Legislature passed Act 166 (Universal Pre-K) which requires towns to provide and/or pay for 10 hours of preschool to 3-4-year olds for 35 weeks per year. The hope is this program will provide higher quality childcare and pre-kindergarten foundations to ensure children are prepared to enter the public-school system for kindergarten. The Town should study, with the goal of implementing additional techniques to promote quality daycare, preschool and afterschool programs. Refer to Town Plan Map 7.

4.2.11 Solid Waste Disposal

Westford is a member of the Chittenden Solid Waste District (CSWD). CSWD is the regional authority responsible for the oversight and regulation of solid waste generated by its members pursuant to the District's Charter, enacted by the Vermont legislature on March 3, 1987. Its authority and responsibilities are described in the District's current Solid Waste Management Plan. CSWD's solid waste management system is based on the following hierarchical priorities: 1) reduction of the toxicity of the waste stream, 2) reduction of the volume of the waste stream, 3) reuse, 4) recycling and composting and 5) disposal. Membership in CSWD satisfies the municipal solid waste planning requirements of 24 V.S.A., 2202a.

Westford is under contract with a private waste hauler to provide curbside pickup. Westford residents' trash is disposed of at an approved facility according to the ordinances and regulations of CSWD. Household trash and recycling are collected weekly. In July of 2020, the State implemented composting requirements prohibiting food waste from entering the solid waste system. Due to expense and the rural nature of the Town, the town does not currently offer composting services through the Town's waste hauling service, but rather residents must compost on-site and/or bring compost to an approved facility. Household hazardous waste can be delivered to a permanent hazardous waste facility in South Burlington or at the "Rover", a mobile collection facility, which sets up in each of the district's member municipalities at least once a year from April to October. Items such as non-alkaline batteries, cell phones, fluorescent light bulbs and tubes, motor oil and filters, small propane tanks, scrap metal and TVs are accepted at most of the Drop-Off Centers (DOCs) located throughout the county.

4.2.12 Wastewater Disposal

In 2007 and 2008, the Town conducted a wastewater study in the Town Center Area. The first step of this study analyzed existing septic systems in the Town Center. This included a survey to area residents, research into existing permits and a GIS analysis of the area. The study found that many properties, particularly those directly around the Town Common, had significant limitations to new or expanded septic systems. A search of permit files found that, despite these limitations, some property owners had been able to legally construct septic systems. The study did not analyze whether new technologies such as pretreatment systems could be used in these areas, since such an analysis would require onsite investigation and was beyond the scope of the study. This is important because many of the properties directly around the common are limited by high water tables, poor soils and area restrictions. In some cases, pretreatment technologies can address these issues. Even so, the study confirmed that there are significant constraints to expanding wastewater capacity, particularly on properties in the Common and Village Districts.

In 2012, the Town conducted a wastewater capacity study of a newly purchased 1.7-acre parcel known as the Spiller property, located directly south-west of the Common. No suitable wastewater disposal soils were found on the property. However, the existing wastewater disposal system that had served the former dwelling on the parcel, is a State-grandfathered three-bedroom system. The property has since been sold and developed with a store and cafe which utilized the existing wastewater system. Cafe seating is limited and use of the second story is restricted due to limited wastewater capacity.

In 2014, the Town conducted a site-specific community wastewater capacity study on the Brick Meeting House, Town Common and White Church properties. The study located an area of soils suitable for septic behind the White Church. The area was generally large enough to serve existing municipal and community facilities around the Common.

In 2014, the Town was contacted by the owners of the historic Jackson Farm, located across from the Westford School, regarding preservation of the iconic fields and historic stonewall as well as wastewater capacity. In 2015 and 2017, the Town further investigated the on-site capacity. In 2018, the Town purchased a portion of the property with the assistance of Vermont Land Trust, Vermont Housing and Conservation Board and generous donors. Seven acres of the northern field was designated a "future wastewater zone" during the conservation process. In 2020, the Town was approved for a Step 1 Clean Water State Revolving Loan with 50% loan forgiveness to complete the Preliminary Engineering Report, which is required for grant eligibility. The Town will continue to investigate funding sources and innovative development strategies in order to develop a wastewater solution for the Town Center Area, which will allow economic development and town center revitalization to occur.

4.2.13 Town Government

The Town Offices are located in the Town Center Area, opposite the Common.

The Town is governed by a Selectboard (3 members), elected for 3-year terms. Other positions include Library Trustees (5), elected for 5 year terms; Town Clerk, elected for 3 years; School Board Members (2), elected 2 and 3-year mixed terms. The Moderator is elected annually, and Justices of the Peace (7) are elected for 2-year terms. Appointed positions include the

following: Town Administrator, Assistant Town Clerk, Town Treasurer, Listers (3), Cemetery Commissioners (3), Planning Coordinator, Road Foreman, Road Crew (4), Dog Warden, Inspector of Wood and Lumber, Delinquent Tax Collector, Fence Viewers (3), Town Service Officer, Zoning Administrator, Emergency Management Coordinator, Planning Commissioners (5), Development Review Board Members (7), Conservation Commissioners (5), Town Common Committee Members (3), Recreation Committee Members (5), Recreation Department Coordinator, Town Agent, Grand Juror, and Librarian.

The Health Officer and Fire Warden are appointed by the State of Vermont upon Selectboard recommendation.

At the 2014 Town Meeting residents voted to adopt a Town Charter, which was also approved by the Vermont State Legislature in 2014. Specifically, the Charter allows the Selectboard to appoint the previously elected positions of Treasurer, Listers, Delinquent Tax Collector, and Cemetery Commissioner. If the need arises, the Charter also allows for the appointment of a Grand Juror or a Town Agent. In addition, the proposed charter would allow for the removal of elected town officers by a vote of the electorate. Such a vote would need to be called for by a petition signed by at least 15 percent of registered town voters.

The primary challenge facing Town government with regard to its continued efficient operation, is the increased difficulty in finding qualified volunteers to carry out various duties. Furthermore, training of Town employees is important to ensure that their skill levels are consistent with accepted standards.

The Town Office in Westford has become responsible for informing residents of local news through the Westford Newsletter and Town Website. The Newsletter and Website provide residents with news about voting, trash and recycling, planning and zoning, school, local events, and local government issues. The Newsletter is published monthly and emailed or mailed to all Westford households with a registered voter. The website was upgraded in 2014 and is updated regularly.

4.2.14 Town Owned Property

There are a total of 16 parcels owned by the Town, totaling approximately 272.37 acres as depicted on Town Plan Map 7. Since 2015, the Town has sold the 14.9 acre Martel Lot located off Westford Milton Road, the 1.7 acre Spiller Lot located off Common Road and a 19.5 acre lot located off Westford-Milton Road, which was owned jointly by the Town and Westford School. Furthermore, the town conveyed 0.46 acres south of Common Road to the two south-eastern property owners, thereby granting these individuals their front yards/dooryards. The Town also acquired 64 acres (Misty Meadows Trails and Forest) surrounding the Westford School from the Westford School District prior to merging with Essex and 130 acres (Maple Shade Town Forest) across the road from the Westford School. These two properties are dedicated to outdoor recreation and education and jointly contain approximately 6 miles of recreational trails. The Maple Shade Town Forest is conserved through a Vermont Land Trust Conservation Easement, which excludes a 7 acre wastewater zone reserved for the future development of a community wastewater leach field to serve the Town Center Area. Table 13 provides details on the Town's parcels. The Town also owns five major structures: Town Office, Library, Town Common Pavilion, Covered Bridge, and Town Garage. All of these buildings and real estate, in addition to

the Town right of ways, constitute very real community assets and represent a significant investment. Some parcels are less important than others, but all deserve some level of planning so as to be of good use or value to the community.

Table 13. Town Property

Ownership	Description	Parcel #	Acreage
Town	Garage & Fire Dept. (Cambridge Rd)	06CM004	14
Town	Office/Library/ Common (Rte 128)	05VL001	3
Town	Knights Pythias/Old Garage Site (Rte 128 - WRO & FHO)	05TW050	1.3
Town	Maple Shade Town Forest (Brookside Road)	05BS010.OP	130
Town	Misty Meadows Trails & Forest (Brookside Rd)	05BS009.A	83.4
Town	Fiege Lot (Milton-Westford Rd)	01MW005	31.9
Town	Cloverdale Lot	07FT030	0.34
Town	Old Dump Site (Huntley Rd - Waste Site))	02HU037	1
Town	Berthiaume Lot (Route 15)	07DF005.X	0.06
Town	Pleasant View Cemetery	01TW013	2.1
Town	Plains Cemetery	02PL009	1
Town	Brookside Cemetery	05ML008.A	2.44
Town	Cook Cemetery	06CN004	0.23
Town	Richardson Cemetery	06CN019	0.25
Town	Osgood Hill Cemetery	06ST002	0.35
Town	Cloverdale Cemetery	07FT022	1

Source: Grand List, 2020

4.3 Facilities, Utilities & Services Goals & Objectives

1. **Community Engagement & Development** – Utilize the Town Common as the focal point of community life in Westford.

2. **Town Center Pedestrian & Bike Safety** - Enhance pedestrian and bike access to the Town Common and surrounding buildings to ensure they are safe and accessible to all.

3. **Town Center Service & Safety Infrastructure** – Make further aesthetic, safety, parking, and traffic-calming improvements to the Town Center Area.

4. **Town Center Density Infrastructure** - Expand Westford's role in providing infrastructure so that higher density development can occur in the Town Center Area.

5. **Road Maintenance** – Continue to improve the quality and maintenance of Town roadways.

6. **Waste Disposal & Reduction** – Strive to reduce Westford's waste production, particularly among municipal offices and buildings.

7. **Emergency Preparedness** - The Town will strive to keep the community safe, informed and prepared for potential disaster.

8. **Emergency Planning & Response** – Focus on emergency planning and response to ensure rapid, safe, and efficient response in times of disaster.

9. **General Population Education** - Provide residents of all ages convenient, easy, and varied ways to learn and strive to broaden access to educational and vocational training opportunities sufficient to ensure the full realization of the abilities of all Westford citizens.

10. **Public School Education** - Assist the District in providing high quality education for our children and to encourage use of town and school property for the benefit and enjoyment of the community.

11. **Child Care** - Encourage high quality childcare for our children, work to ensure the availability of safe and affordable childcare, and collaborate with local and regional partners to integrate childcare issues into the planning process, including childcare financing, infrastructure, business assistance for child care providers, and child care work force development.

12. **Town Properties** - Inventory and manage town-owned lands to ensure they benefit Westford citizens.

13. **Town Cemeteries** - Maintain the cemeteries located in Westford.

5 ECONOMIC DEVELOPMENT

5.1 Policy

It is the policy of the Town of Westford to accommodate home occupations, home businesses, and small-scale business, all of which can benefit residents and provide local employment. However, these businesses must be compatible with the landscape, located appropriately to conserve significant natural resources and working lands, and be in keeping with the rural character of our Town.

5.2 Inventory & Discussion

Westford is a rural bedroom community where the majority of its employed residents commute to work in the greater Burlington area and surrounding Chittenden County. The primary commercial base in Westford is composed of a diverse mix of home occupations where residents conduct business of varying intensities from their home or from an accessory structure on their property. The secondary commercial base is a diverse mix of agricultural and forestry operations including equine, beef, poultry, and sugaring. Although the last dairy operation in the Town ceased operation in 2019, maple syrup and beef production have increased over the last five years. Finally, there are a few small-scale businesses in our Town, primarily located on Route 15 and Route 128.

In general, the economic conditions experienced by businesses in Chittenden County, and to a lesser extent the State of Vermont, directly affect the economic well-being of the majority of Westford's residents. While there are many economic factors beyond Westford's immediate control, such as fuel costs and uncertainty regarding major regional employers, Westford can strengthen its own resiliency by fostering diverse local employment and recreational opportunities that are compatible with the community's rural character.

To ensure growth and development will be compatible with the Town's distinctive rural character, Westford's planning is focused on identifying where development should or should not go, where businesses can thrive and how they can sensitively fit the context in which they are located. Furthermore, Westford's ability to successfully promote or attract commercial development is limited. Roads in the town are primarily gravel and are weight restricted during the spring. There is also no three-phase power. High speed internet access and telecommunication services are improving but are still limited for commercial uses. For these reasons, the Town Center Area has been zoned as the hub for business and housing.

Westford residents agree that our Common and Village Zoning Districts would benefit from certain types of small-scale business, creating a more vibrant and desirable Town Center Area. The Town intends to pursue development of the Town Center Area by encouraging and supporting business and housing to improve quality of life. In doing so, the Town should capitalize on Westford's rural setting, working lands, historic Town Common and vast recreational network and programs to support our local economy and accommodate outdoor, recreational enthusiasts (i.e. hiker, bikers, runners, etc.). This land use vision is supported by a majority of residents. A 2019 community survey of Westford landowners and residents indicated that people desire small scale commercial development in the Common and Village Zoning Districts. Findings contained in the Vermont Council on Rural Development's Report and

Action Plan, based on community meetings held in the fall 2019, reinforced that residents view the Town Center Area as an economic and community asset.

Over the last several years the Town has worked to set a foundation for sustainable economic development in the Town Center Area through the adoption of a unified bylaw and a Form-Based Code Overlay District , a mobile food vendor ordinance that applies in the Common Zoning District, and State of Vermont Agency of Commerce and Community Development designations. In 2010, the Town received Village Center Designation from the Agency of Commerce and Community Development for the area surrounding the Town Common. Designation provides tax incentives for substantial rehabilitation of certified historic buildings, facade improvements and code improvements, etc. to individuals with multifamily and/or commercial buildings located in the designated area. This designation encourages not only business in the Town Common Area, but the preservation of historic structures. In 2019, the Town received Neighborhood Development Area Designation for the Form Based Code Overlay District – T5 area from the Agency of Commerce and Community Development. This designation currently exempts Priority Housing Projects from Act 250 jurisdiction, exempts housing units sold from the land gains tax and reduces state permit fees. This designation also encourages and attracts business as well as the development of work force housing.

Agriculture and silviculture are more widely suited for areas outside of the Town Center Area due to road infrastructure, significant natural resources and limiting geographic features, some small scale commercial development is appropriate along Route 128 and Route 15. Therefore, Westford has adopted planning and design standards that encourage and enable a mix of development uses along the Town's paved roads. Properties along these routes are economic assets in the sense that they can accommodate more traffic. However, it is vital that development along these corridors conform with the Rural 5 Zoning District Planning and Design Standards to ensure rural character, viewsheds, working lands and significant natural resources are preserved.

It should also be noted that residents were in agreement that agricultural and silvicultural based uses should be supported and encouraged. Westford should provide for and protect the viability of agriculture and agricultural lands. Westford has available agricultural lands and the potential to grow a diverse agricultural economic base that includes agricultural related tourism. Our close proximity to the greater Burlington area provides the Town with a large consumer market for locally grown agricultural products. It is for this future economic potential that Westford shall act to protect its open agricultural lands from the effects of development. Westford will investigate incentives and shall create more zoning flexibility to facilitate the growth of agricultural land use and to accommodate the planning needs of existing agriculture businesses. Furthermore, Westford is supportive of appropriate agricultural operations and agriculture related businesses and will investigate the encouragement of new agricultural operations and agriculture related businesses.

Lastly, Westford should continue to encourage the development of high-speed internet and telecommunications services to all Westford residents so that everyone has the ability to conduct business from their home with up to date communications capability. Professionals rely on wireless devices to access information when away from the office. Some communities have created public Wi-Fi districts in their Village Centers and fiber optics. Currently, the Westford Public Library offers patrons free Wi-Fi access. In 2020, the internet network was expanded with the Town Common Area and a public Wi-Fi zone was established.

5.3 Economic Development Goals & Objectives

1. **Land Use & Development Regulations** – Support small scale business that is in keeping with the rural character of town.

2. **Recognize Business** - Support existing and future businesses that serve the community, provide employment and are in keeping with the Town's rural character. Recently, examples include Rover's North, Westford Country Store and Cafe and proposed office complex on Westford-Milton Road.

3. **Branding, Marketing & Wayfinding –** Develop a Town brand and direct individuals to community assets and businesses.

4. **Expand Neighborhood Development Area** – Expand Westford's Neighborhood Develop Area through administrative, regulatory, or legislative means.

5. **Digital Support of Business -** Continue to encourage affordable access to high speed internet so that everyone has the ability to conduct business from their home with up to date communications capability. Furthermore, the Town should encourage and seek to improve cell coverage for general community use, emergency response, public safety, and economic development.

6. **Infrastructure** – Pursue community wastewater, three phase power and other infrastructure solutions in the Town Center Area to attract and support businesses that are in line with scale with the village. Explore various funding models and grant opportunities that will minimize long term cost to the Town.

7. **Natural Resource Based Business -** Preserve and enhance resident's ability to sustainably use Westford's natural resources for commercial purposes, such as agriculture, silviculture, forestry and recreation.

6 TRANSPORTATION, PUBLIC LANDS & TRAILS

6.1 Policy

It is the policy of the Town of Westford to provide for and maintain safe roads for both vehicular and non-vehicular transportation as is reasonably prudent and to pursue energy and resource efficient transportation options for Westford residents. It is also the policy of the Town to continually maintain and improve public lands and trails in order to offer convenient access for a variety of allowed uses.

1. The Town is committed to maintaining safe and adequate roadways for its residents.

2. Gravel roads should be maintained rather than paved unless paving a road is studied and (a) proven to be economically beneficial, (b) resultant traffic use does not unduly affect the adjoining properties with regard to safety and traffic volume, (c) fossil fuel use due to studied changes in traffic volume is a net reduction, (d) does not negatively impact pedestrian safety, and (e) paving has proven to be the best maintenance option for that road and/or portion of road.

3. The Town shall ensure necessary road and driveway standards for emergency vehicle access to all residential housing and businesses.

4. The Town will strive to create safe modes of travel for non-vehicular transportation on town roads, trails, and within the Town Center Area.

5. The Town should do all that is within its power to seek continued maintenance by the State for Routes 128 and 15.

6. The Town will strive to keep abreast of developments in regional transportation planning as well as seek local measures to increase transportation options for Westford residents.

7. The Town shall encourage modes and strategies of transportation that reduce fossil fuel consumption.

8. The Town shall promote responsible use of roads and trails through education.

9. The Town shall research policies, programs, and potential Capital Funded investments especially culvert and bridge replacement to avoid or mitigate losses to private persons and property and to public infrastructure from floods, severe rainstorms, and Fluvial Erosion Hazards.

10. The Town shall seek out and implement appropriate strategies to calm traffic and increase bicycle and pedestrian safety.

11. The Town will strive to maintain a safe and efficient transportation system that acknowledges the importance of appropriately designing culverts, bridges, and road crossings to promote flood resiliency, aquatic organism passage, and terrestrial animal movement.

6.2 Inventory & Discussion

6.2.1 Road Inventory

Westford is served primarily by a network of gravel secondary roads. The Town's most heavily traveled roads run north to south, following the overall topography of the Town. These are traversed by a network of east-west connections. Paved sections of road maintained by the Town include a short section at the northern end of Old Stage Road, a short section at the western end of Cambridge Road and the Milton-Westford Road. Numerous private roads adjoin town roads and serve individual housing developments. In addition, the Town holds rights of way to several roads that are not currently used by vehicles.

The most heavily traveled roads in Westford are State Routes 128 and 15. Route 128 runs north-south through the middle of Westford and passes through the Town Center Area. Route 15 runs north-south through a small portion of the northeast corner of the town. Both highways are maintained entirely by the State of Vermont Agency of Transportation.

Several of Westford's roads act as major corridors for through travel to and from locations outside of Town. VT Route 128 is a trucking corridor and a commuter corridor connecting towns north and south of Westford. VT Route 15 is a trucking and commuter corridor used on the eastern section of Town. The Westford-Milton Road provides access to VT Route 7 and VT Route 128 and 104 to the north. Woods Hollow Road and Old Stage Road also serve as a commuter corridor connecting towns north and south of Westford.

These corridors connect Westford residents as well as non-residents to major hubs in the State. While they offer many benefits such as efficient travel and commerce, they also contribute to higher traffic volume, more safety concerns, more noise, and increased road wear and maintenance.

Westford does not have any Class 1 town highways. There are 12.48 miles of Class 2 town roads, 26.86 miles of Class 3 town roads, and 1.80 miles of Class 4 town roads. There are 39.34 miles of town highway and 9.37 miles of State highway (Route 128 & Route 15) in Westford for a total of 48.71 miles of traveled roads. There are also 4.82 miles of legal trails.

In Vermont, classes of roads are defined as follows:

Class 1 - Forms an extension of a State highway route and carries a State highway route number.

Class 2 - Serves as a connecting highway between towns or places with more than normal amounts of traffic. Cambridge Road and the Milton-Westford Road are examples of this road class.

Class 3 - Highways other than Class 1 or 2, which are negotiable under normal conditions during all seasons by standard pleasure cars. Old #11, Plains Road and Manley Road are examples.

Class 4 - Highways other than Class 1, 2, or 3, which are typically not maintained for vehicular travel. However, the Town has created an ordinance governing maintenance of Class 4 roads. The Town has two classifications of Class 4 roads. Class 4-A are roads serving full time, permanent residents. These roads receive year-round maintenance. Seymour Road is an

example. Class 4-B roads receive minimal maintenance as required by state statute. All Class 4 roads that are not classified as being Class 4-A are Class 4-B. Examples include Rogers Road.

These highways frequently function as trails; however, they are distinct from legally designated Town trails. The Town owns the rights of way over a number of legal trails in addition to the Town road/highway system. Many of these trails follow old Town roads, and thereby connect current roads across areas not currently used by vehicles or only used by individuals owning property along them by permission of the Selectboard.

In 2017, the Chittenden County Regional Planning Commission (CCRPC) completed a Road Erosion Inventory (REI) of hydrologically connected town-owned roads to help the Town prepare for implementation of the Town's required Road Stormwater Management Plan for the Municipal Roads General Permit (MRGP), issued by the State in 2018. Of the 410 hydrologically connected 100-meter road segments in Westford inventoried by the CCRPC, 251 do not meet current MRGP standards. The Town will have until December 31, 2036 to bring those 251 segments (totaling 15.60 miles) up to standard. Initially, to comply with the permit, the Town will need to focus its work on seventeen (17) non-compliant road segments with drainage ditches scoring "Does Not Meet" on the REI, on slopes greater than 10%, as these are considered by the Permit as "Very High Priority Road Segments" which "shall be upgraded to meet the MRGP standards listed in Part 6 of this General Permit by December 31, 2025." Refer to Map 6 which identifies issue areas/infrastructure and Road Committee recommended upgrades.

6.2.2 Public Lands & Trails Inventory

Westford Town owned lands dedicated to public use primarily consist of three parcels; the Town Common, located in the center of our village, Misty Meadows Trails and Forest located adjacent to the Westford School, and the Maple Shade Town Forest located across from the Westford School on the west side of Brookside Road.

The Town Common area is a principal community outdoor gathering space, allowing for a wide range of social and recreational activities. This large, central green space in the village has been an important component for development of the village in the historic tradition of a rural Vermont community.

The Misty Meadows Trails and Forest is an 84-acre parcel that adjoins our school providing a range of environmental, athletic, and educational opportunities. Transferred to our Town by the Westford School District in 2018, it borders the Browns River with a varied landscape of forest and open land that hosts a well-developed, year-round, public trail network currently maintained by the Westford Conservation Commission.

Maple Shade Town Forest, better known as the Jackson Farm, was purchased in 2018 in partnership with the Vermont Land Trust, Pouliot family, and Haller family with funding assistance from the Vermont Housing and Conservation Board, US Forest Service and numerous private donors in a community wide effort to preserve the historic 175-acre Jackson family farm. Our Town's portion is 130 acres of primarily forested land that offers expansion of our recreational natural area, trail network, and wastewater capacity for our Town Center Area.

In 2018, the Westford Selectboard appointed the Westford Town Lands Long Term Management Plan Committee to draft a long-term management plan for Misty Meadows

Trails and Forest and Maple Shade Town Forest, known as the Westford Town Lands. The long-term management plan has been completed and trail network expansion is underway.

In addition to the trails found on the Westford Town Lands, the town has 4.82 miles of legal trails located in the eastern and western foothills. These public rights of way or legal trails were once public roads connecting Westford to Milton, Underhill, and Jericho. In 1973, the Town discontinued the public roads due to lack of use, difficult terrain, and maintenance costs. The Town's decision was appealed. Soon thereafter the Superior Court issued a decision stating the public roads or rights of way were discontinued in error and required that they be reestablished as legal trails.

6.2.3 Road Committee

In the spring of 1998, the Westford Selectboard appointed a Road Committee, following the very rainy and long mud season. The focus and mission of that Road Committee was "… to identify existing road maintenance policies and procedures and to make recommendations to the Selectboard for improving the Westford road maintenance program." (1999 Westford Road Plan, pg. 2). In 2004, the Selectboard reformed a road committee to update the 1999 road plan for the next 5 years and did so again in 2010, 2012, and 2017.

The focus of the Road Committee is to:

1. Review and update the Road Plan, as necessary.
2. Identify highway problems and new construction projects to be completed during the next five years, with consideration given to transportation hazards and mitigation actions identified in the All Hazards Mitigation Plan.
3. Make recommendations for budget items to be considered by the Selectboard for inclusion in the town budget.
4. Make recommendations regarding road repair/maintenance standards as well as other general road related policies.

The Westford Road Committee convened in 2012 after an unusually bad mud season that included the closure of several roads and significant changes to the school bus routes during the closures. The Committee approached the Selectboard with their concerns and the Selectboard agreed to appoint the 2012 Westford Road Committee. This Committee had a much different focus than the last three Road Committees. There was a lot of communication with the Selectboard about what items the Committee would focus on and during the process, the Committee agreed to address specific requests that the Selectboard brought up. These issues included:

1. Road standards;
2. Winter sand analysis;
3. Mud season policy;
4. Heavy truck traffic;
5. Review of road maintenance practices by Vermont Local Roads;
6. Paving analysis;
7. Road foreman hiring assistance.

It should be noted that the most recent Road Committee completed their Road Report in 2017.

6.2.4 Transportation Options

School Transportation
At present prek-8 students have school bus service to and from the Westford School for daily attendance, as do the grades 9-12 to the Essex High School. Bus service is made available for specific school events such as field trips and athletic events.

Residential Transportation
Residents travel by motorized vehicle, on foot, bike, horse, and other various means around Town to meet with their neighbors, attend school and other school centered activities, to conduct business, attend events, and generally enjoy the outdoors.

Commuter Transportation
In 2014, the south eastern parking lot on the Town Common was upgraded and paved using a State of Vermont Park and Ride Grant. Therefore, this lot, which once served as the unofficial park and ride lot, has officially been declared a park and ride facility. It is the only park and ride facility located in Westford. The Park and Ride would also be a good location for an Electric Vehicle charging station.

Public Transportation
Historically, Green Mountain Transit (GMT) has concluded that bus service to and from Westford is not feasible. However, there have been efforts to develop innovative commuter services that include "on demand" services, ride share programs, and expand the overall service area in Essex. In 2013, GMT began running a Jeffersonville commuter bus line which traverses VT Route 15 in the northern eastern part of Westford. However, there are no stops along the Westford stretch of VT Route 15. Westford should support and be supported by public transportation in the region. Westford should remain in contact with GMT and request service if public participation and interest warrants said request.

Special Services for Seniors & Others
Seniors in Westford are generally long-time residents of Westford who choose to remain in their homes, close to their family members and friends that reside in and/or close to Westford. Basic services (e.g. doctors and pharmacies) are not currently available in Town and thus residents must travel out of town to obtain such services. Seniors have few transportation options. No public transportation is available to allow seniors independent travel to or from service providers. However, the United Way has recently created Neighbor Ride, which uses volunteers to provide transportation to seniors and individuals with disabilities. This is a volunteer program in which drivers use their own vehicles for transport and are reimbursed for mileage by the United Way. The Special Services Transportation Agency (SSTA) also provides accessible transportation for people who have specialized mobility needs, such as physical or mental disability, using SSTA drivers and vans.

Village Mobility
Currently, there is only one sidewalk in the village connecting the Town Office and Library. In 2019, VTrans installed a crosswalk connecting the Town Offices to the Common. The Town's vision includes new and upgraded pedestrian safety infrastructure with the expansion of pedestrian paths and sidewalks, calming traffic measures, and convenient community parking to promote walking within the village. This will also encourage the exploration of multimodal connections

between the village and rest of the community with the goal of promoting alternative forms of transportation to serve the village. In 2019, as a result of a Vermont Council on Rural Development Community Visit, a citizen group formed a multimodal transportation taskforce to investigate these concepts further.

Rail and Air Transportation

Westford is not directly served by railroad. Travel via rail is possible via stations in St. Albans and Essex Junction. Burlington International Airport is the closest airport facility with passenger service.

6.2.5 Other Road Uses

The roads of Westford are used in a myriad of ways besides commuting; these additional uses are considered valuable to a vibrant community. In addition to the traditional transportation options described previously, new uses have developed that include organized and informal horseback riding, dog mushing, running races, bike races, and tours. These include locally sponsored events like the Turkey Trot, the Pumpkin Run, Essex Common to Westford Common, Rollin Irish ½ marathon, Richard's Ride, and many others.

The roads are also essential for forestry and agricultural use. The hauling of sap, timber, hay, livestock, and horses are some of the common activities.

6.3 Transportation, Public Lands & Trails Goals & Objectives

1. **Road Maintenance** - Maintain and upgrade the existing road network to the level necessary for operation in an economically and environmentally sound way and ensure that appropriate road, culvert, and bridge standards are adopted to guide these upgrades, preserve water quality, increase flood resiliency, and allow for aquatic passage and terrestrial animal movement.

2. **Growth, Existing, & New Roadways** - Provide a safe transportation system to serve vehicles, horse riding, bicycles, and pedestrians that is appropriate to the Town's present and expected growth by identifying unsafe or perceived unsafe conditions, such as intersections and limited sight lines, and developing remedies for such unsafe conditions, taking into consideration the Town's expected growth and changes in life styles of the Town's residents.

3. **Paving** - If paving is considered in the future, the Town shall study and consider the following to better assess whether paving is an efficient and effective method of maintenance:

    a. Will paving be economically beneficial to the Town;
    b. Will resultant traffic use unduly affect the adjoining properties with regard to safety and traffic volume;
    c. Will fossil fuel use due to studied changes in traffic volume be a net reduction
    d. Will paving negatively impact bicycling and pedestrian safety or will it increase the safety of pedestrians and bicyclists and encourage non-vehicular traffic year-round due to improved footing and a stable surface year-round;
    e. Will paving improve access for emergency vehicles;

f. If paving is considered beneficial, can an alternate means of travel and/or recreation be provided for pedestrians and bicyclists;
g. Will paving allow increased use of low-emission / zero-emission vehicles;
h. Will paving be the best long-term maintenance option for that road and/or portion of road.

2. **Inventories & Record Keeping** - The Town will strive to maintain an inventory of the road infrastructure (examples; bridge/culvert, flood damage sites, road surface issues, ditches, etc.) to determine issues, needs, and priorities for road maintenance and other planning considerations.

3. **Speed Enforcement** - Reduce speeding and increase the safety of all users on State and Town roadways through speed limit enforcement, traffic calming measures, public outreach, and education.

4. **Non-Vehicular & Public Safety** - Improve safety for non-vehicular users.

5. **Travel Safety & Etiquette Education** - The Town will plan for education and permanent information for children as well as adults on how to share roadways with vehicular traffic as well as about etiquette on roads and trails.

6. **Promote Walkability** – Promote walkability in innovative ways by considering opportunities to connect neighborhoods within the Town Center Area, by creating routes for non-vehicular traffic and by ensuring that routes for non-vehicular traffic are properly maintained year-round. For example, the Town could plow a path to and from the covered bridge to Cambridge Road as it is safer to walk through the covered bridge than on Cambridge Road.

7. **Trail Expansion & Connectivity** - Develop and maintain a public trail system to improve access to natural areas and promote connectivity throughout Westford;

8. **Management Planning** - Continue to update Westford Town Lands Long-Term Management Plan concerning the types of specific activities allowed and prohibited on Town public lands and trails;

9. **Community Involvement** - Work with landowners to construct a public trail that will connect our Town Common with our public lands on Brookside Road;

10. **River Access** - Explore public access to Browns River to allow for seasonal recreational activities.

11. **Alternative Transportation** - Encourage innovative transportation options such as greenways, an interconnected system of pedestrian paths and trails for walking, biking, horseback riding, and recreation, and the eventual provision of public transportation service via the Green Mountain Transit.

12. **Regional Transportation** - The Town shall actively work with the Chittenden County Regional Planning Commission and the Vermont Agency of Transportation to coordinate

on local projects as well as projects that may affect the use of Westford's roads as a corridor of travel.

13. **Electric Vehicles** - Encourage the use of electric vehicles and allow for and/or provide charging stations.

7 ENERGY

7.1 Policy

It is the policy of the Town of Westford to reduce our economic and environmental impact of energy use; encourage the use of renewable energy resources; reduce dependency on fossil fuels; increase energy efficiency, conservation and independence; and reduce municipal energy costs through energy efficiency, conservation and a full evaluation of purchasing practices. Westford shall encourage the affordability and sustainability of living, working, and doing business in Westford and will continually strive to reduce Westford's impact on the local, regional, and global environment.

The Town will encourage and employ conservation and energy efficiency practices; development and use of renewable energy resources; and reduction of fossil fuel use for transportation, town maintenance, and town infrastructure. It will also encourage and facilitate citizens of Westford to reduce their carbon footprint through educational programs and other Town-sponsored programs and/or informational resources.

The State has set the goal of providing ninety percent of the State's renewable energy needs by 2050. That is an ambitious goal. The information provided in this chapter is included to comply with that goal and to achieve substantial deference in any matters before the Public Utility Commission. Ultimately it should be the goal of the Town to achieve energy independence, separate and distinct from the State's objectives.

7.2 Inventory & Discussion

The data provided in this chapter is taken from a broad regional and national data sets and is not specific to data of Westford residents. High margins of error are typical in geographies with smaller populations.

Westford's energy use follows conventional patterns. Most energy sources are fossil fuel based for heating and transportation, except for the use of wood for supplemental heat. Electricity is provided through the state-wide electric utility grid with a current majority of the base load power supplied by imported energy from Hydro-Quebec, and spot or peak demand electricity being obtained on the open market dominated by natural-gas fired stations around New England.

Westford is served by two electric utilities, Vermont Electric Cooperative (VEC) and Green Mountain Power (GMP). Currently, only single-phase power is available within the Town. The closest three-phase power lines are located in Milton (off the Westford/Milton Road) and north of town in Fairfax, approximately 0.5 miles from the border of Westford and 3 miles from the Town Center area.

Westford is not serviced by natural gas although it is available in some bordering towns such as Fairfax, Essex, Georgia, and Jericho. Vermont Gas Systems currently does not have plans for expansion into Westford due to the low density of housing and few commercial businesses. Due to the lack of natural gas service, Westford matches the majority of the State in how homes are heated. Residents rely on sources of oil, propane, kerosene, and wood for heating homes.

Vermont has a growing renewable energy power supply, with sharp increase in Photovoltaic (PV) and Wind Energy projects developed over the past 5 years. The nearest commercial wind energy generator is located to the north-west of Town in the Towns of Milton and Georgia.

In 2017, the town asked residents to participate in a survey to find out more about the existing housing stock, transportation, and interest in alternatives to energy and transportation fuel use. The full survey can be found on the Town website.

Table 13. Primary Heating Summary Survey Results

Primary Heating Fuel	% Response
Oil	29%
Propane	27%
Wood/Pellet	32%
Other	12%
Heating System Type	**% Response**
Furnace	16%
Boiler	48%
Wood/Pellet Stove	32%
Other	4%
Gallons of Fuel per Year	**% Response**
<250	17%
251-500	21%
501-750	27%
751-1000	22%
>1001	6%
N/A	8%

Table 14. Annual Electric Usage from Survey

Annual Electric Use (kWh/yr)	% Response
<3,000	7%
3,001-6,000	29%
6,001-9,000	27%
9,001-12,000	12%
12,001 +	7%
N/A	18%

Table 15. Housing Stock Summary Survey Results

Age of Home	% Response
<10 years	18%
10-20 years old	15%
21-50 years old	54%
51-100 years old	5%
>100 years old	17%
Participated in Efficiency Program	**% Response**
Yes	47%
No	48%
Unaware of Programs	6%
Renewables at Home	**% Response**
Yes	27%
No	73%

7.2.1 Current Energy & Generation

The data in this chapter provides an overview of current energy use and sets targets for advancing the State's 2050 goals for energy use from heating, transportation, electricity, as well as the State's 2050 goals for renewable energy generation. Additionally, the data in this section are intended to provide Westford with a sense of the trajectories and pace of change needed to meet targets, which can be translated into concrete actions in the Goals and Implementation section. The targets provide Westford with milestones or checkpoints along the way toward a path of meeting 90% of their total energy needs with renewable energy. The targets can be compared with the potential renewable energy generation from areas identified as potentially suitable in Map 11 and 12 to give a sense of Westford's ability to accommodate renewable energy that would meet the town's need.

Table 16 provides an overview of the passenger vehicle fleet composition by fuel source in Westford and serves as a proxy for transportation energy use. Overall, Westford residents rely on fossil burning vehicles more than electric vehicles. In 2015, Westford was home to about 1,554 fossil fuel burning light duty vehicles. As of July 2017, Westford had 7 electric vehicles registered. The number of electric vehicles includes all electric and plug-in hybrid vehicles.

Table 16. Current Municipal Transportation Energy Use

Fossil Fuel Burning Light Duty Vehicles, 2015	1,554
Electric Light Duty Vehicles, July 2017	7
Sources: DMV, Drive Electric Vermont	

7.2.2 Thermal Energy

Table 17 explains how homes are heated in Westford based on American Community Survey's 5-year estimates with a level of error. Therefore, Westford's household survey data in Table 1 may be more accurate. However, there is one more category in the household survey so the data can't be compared precisely; and the data don't appear to be that different. CCRPC used the data

below in the modeling analysis to determine the targets, following a process that has been used statewide.

Table 17. Number of Homes Heating with Delivered Fuels + Wood 2015

Number of homes heating with Fuel oil, Kerosene	304 homes (41% of homes)	Margin of Error +/-53
Number of homes heating with Propane	225 homes (30% of homes)	Margin of Error +/- 41
Number of homes heating with Wood	200 homes (25% of homes)	Margin of Error +/-42
Sources: American Community Survey 2011-2015 5-Year Estimate		

7.2.3 Weatherization

The State of Vermont's energy goals include a goal to weatherize 25% of homes by 2020. For Westford (with 742 housing units, according to the 2011-2015 American Community Survey 5-Year Estimate), this means approximately 186 homes weatherized by 2020. The data source for home weatherization is from Efficiency Vermont through the Home Performance with ENERGY STAR® (HPwES) program. HPwES is a 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. Efficiency Vermont's data does not capture do-it-yourself projects or projects that do not go through the HPwES program. Based on this data, a total of 147 residential projects have been completed between 2014-2017. A project is a collection of one or more energy efficient measures that have been implemented at a customer's physical location. A customer can be associated with one or more projects and in some cases, a project may be associated with multiple customers. As such, it is difficult to report the total number of homes weatherized.

Table 18. Recent Residential Energy Efficiency Projects

	2014	2015	2016	2017	Total
Home Performance with ENERGY STAR® Leads/Audits	8	7	5	3	23
Residential Projects (includes Home Performance with ENERGY STAR® projects)	27	38	36	46	147
Source: Efficiency Vermont, May 2018					

7.2.4 Electricity

An estimate of current and past electricity consumption by residential and commercial/industrial sector in Westford is shown in Table 19. Since 2014, average residential electricity usage has decreased and is consistent with trends for the county, as a whole, and for individual municipalities. This likely can be attributed to the energy efficiency measures installed or resident net-metering.

Table 19. Electricity Consumption

Sector	2014	2015	2016	2017
Commercial & Industrial	1,008,454	1,024,548	1,057,290	1,016,321
Residential	7,025,291	7,027,631	6,919,092	6,735,949
Total	8,033,745	8,052,179	7,976,382	7,752,270
Count of Residential Premises	826	830	838	842
Average Residential Usage	8,505	8,467	8,257	8,000
Source: Efficiency Vermont, May 2018, Data is in kWh.				

No large-scale renewable energy systems exist in Westford, as of the fourth quarter of 2017. Some residential scale renewable systems exist, and the installation of these systems has been increasing over the past 5 years. According to the Vermont Energy Atlas, as of July 2017, Westford had over 60 Solar Photovoltaic (PV) systems installed with a total capacity of 411 MWh, twelve domestic solar hot water systems, and one wood chip boiler installed at the Westford School. There are no documented hydro plants in town.

Table 20. Existing Renewable Electricity Generation

	Sites	Power (MW)	Energy (MWh)
Solar	60	.37	411
Wind	0	0	0
Hydroelectric	0	0	0
Biomass (Wood)	1	Unknown	Unknown
Other	0	0	0
Total	61	.37	411
Source: Community Energy Dashboard, July 2017			

7.2.5 Future Energy Use Targets

The Chittenden County Regional Planning Commission worked with the Vermont Energy Investment Corporation (VEIC) and the Vermont Department of Public Service in 2016, to develop regional targets for future energy use and generation. The intent of these targets is to meet the State of Vermont's 90 x 50 goal, which is producing 90 percent of the state's energy through renewable sources by 2050. The targets represent one scenario of what meeting this goal may look like, but it should be kept in mind that there may be a variety of ways for Vermont to achieve the 90 x 50 goal. For more information about the regional targets, please see the 2018 Chittenden County ECOS Plan - Supplement 6 (http://www.ecosproject.com/2018-ecos-plan/). The series of tables below (Tables 21-29) show the targets for future energy use for Westford by sector.

7.2.6 Transportation Energy Targets

The transportation energy targets for Westford represent an electrification of the transportation sector in an effort to increase 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

72% by 2050. This will primarily be achieved by converting to more efficient electric vehicles from fossil fuel vehicles. To achieve this reduction, 89% of passenger vehicles must be electric. Electrifying the light duty sector will also lead to a dramatic increase in electricity use in the transportation sector and a significant decrease in gasoline consumption. To meet renewable energy goals in the heavy-duty sector, biodiesel is anticipated to become a primary fuel source.

Table 21. Future Transportation Energy Use Targets, 2025-2050

	2025	2035	2050
Total Light Duty Transportation Energy Use (MMBtu)	91,336	57,855	25,216
Electricity Used for Light Duty Transportation (MMBtu)	1,218	8,396	17,719
Light Duty Electric Vehicles (% of Vehicle Fleet)	6%	41%	89%
Biofuel Blended* Energy Used for Light Duty Transportation (MMBtu)	90,118	49,460	7,497
Biofuel Blend*Light Duty Vehicles (% of Vehicle Fleet)	94%	59%	11%
Heavy-Duty Transportation Energy Use from Biodiesel (Percent of Total)	33%	58%	96%
Heavy-Duty Transportation Energy Use from Fossil Fuels (Percent of Total)	67%	42%	4%
**This measures biofuels blended with fossil fuels. A common example is gasoline with ethanol mixed in.* **MMBtu - One million british thermal units.*			
Sources: VTrans, LEAP Model			

7.2.7 Thermal Energy Targets, Commercial Sector

The thermal targets for Westford in 2050 estimates, a 16% reduction in total commercial and industrial thermal energy use. This will primarily be achieved through weatherization and the use of more efficient heating technologies. These targets also estimate that renewable sources of heat will become more common. By 2050, 29% of businesses are targeted to be using heat pumps and 8% of businesses will be using wood heat.

Table 22. Future Commercial and Industrial Thermal Energy Use Targets, 2025-2050

	2025	2035	2050
Total Commercial and Industrial Thermal Energy Use (MMBtu)	12,615	12,016	10,628
Percent of Commercial and Industrial Establishments Weatherized by Target Year	15%	17%	29%
Energy Saved by Weatherization by Target Year (MMBtu)	678	940	2,266
Commercial and Industrial Establishments Using Heat Pumps (%)	16%	26%	29%
Commercial and Industrial Thermal Energy Use by Heat Pumps (MMBtu)	1,023	2,022	3,021
Commercial and Industrial Establishments Using Wood Heating (%)	7%	8%	8%
Commercial and Industrial Thermal Energy Use Attributable to Wood Heating (MMBtu)	1,526	2,102	3,078
Sources: LEAP Model, Department of Public Service, Department of Labor			

7.2.8 Thermal Energy Targets, Residential Sector

Thermal energy use in Westford homes is targeted to decrease by 41% from 2025 to 2050. Residential buildings will use less energy for space heating due to an increase in the percent of buildings that are weatherized and greater efficiency in heating technology. To achieve the targeted energy savings, all the of homes in Westford need to be weatherized by 2050. Additionally, the number of homes relying on heat pumps needs to increase to 61%. Heat pumps are powered by electricity and are a more efficient way to heat a building compared to delivered fuels. Wood heating also plays an important role in reducing thermal energy use and increasing the amount of renewable fuel sources for the thermal sector. The target for homes relying wood heat is 14% of homes.

Table 23. Future Residential Thermal Energy Use Targets, 2025-2050

	2025	2035	2050
Total Residential Thermal Energy Use (MMBtu)	66,070	56,020	38,786
Percent of Residences Weatherized by Target Year	14%	36%	100%
Energy Saved by Weatherization by Target Year (MMBtu)	3,084	8,424	26,367
Percent of Residences Using Heat Pumps	18%	37%	61%
Residential Thermal Energy Use from Heat Pumps (MMBtu)	4,282	8,810	12,917
Residences Using Wood Heating (%)	14%	14%	14%
Residential Thermal Energy Use from Wood Heating (MMBtu)	12,133	12,145	10,670
Sources: LEAP Model, Department of Public Service			

7.2.9 Electricity Targets & Total Energy

Total electricity use is targeted to increase by 65% from 2025 to 2050 (Table 12). This will likely be driven by conversions to electric heat pumps and electric vehicles. These consumer changes will cause electricity use to grow. At the same time, total energy use will decrease, and electricity will become a larger proportion of the state's total energy use (see tables 13 and 14 for more information). Total energy use will be reduced because technologies will be increasingly efficient and because using electricity for transportation and heating is more efficient than using other energy sources, such as fossil fuels.

Table 24. Future Electrical Energy Use Targets, 2025-2050

	2025	2035	2050
Without Industrial (MWh)	5,715	7,284	9,440
Industrial Only (MWh)	1,854	2,398	3,219
Total (MWh)	7,569	9,682	12,658
Total Electric Energy Saved (MWh)	1,252	2,527	4,727
Residences that have increased their Electric Efficiency	30%	58%	98%
Commercial and Industrial Establishments that have Increased Their Electric Efficiency	30%	58%	98%

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

Table 25. Future Total Energy Use Per Capita Targets (Including Industrial Electricity Use*) 2015-2050

	2015	2025	2035	2050
Total Energy Use (MMBtu)	216,867	195,847	158,925	117,820
Population	2,080	2,186	2,525	2,361
Total Energy Use Per Capita (MMBtu)	104	90	63	50
Reduction in Total Energy Use Per Capita since 2015	--	-14%	-40%	-52%

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

Table 26. Future Total Energy Use Per Capita Targets (Excluding Industrial Electricity Use) 2015-2050

	2015	2025	2035	2050
Total Energy Use (MMBtu)	212,407	189,520	150,744	106,838
Population	2,080	2,186	2,525	2,361
Total Energy Use Per Capita (MMBtu)	102	87	60	45
Reduction in Total Energy Use Per Capita since 2015	--	-15%	-42%	-56%

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

7.2.10 Projected Renewable Energy Generation Potential

Wind & Solar Energy

This section describes how much wind and solar generation potential exists in Westford and sets targets for additional renewable energy generation to be sited within the town. The generation targets are technology neutral, meaning Westford can use any form of renewable generation (wind, solar, biomass, hydroelectric, etc.) to meet its goals. It is important to understand that the State of Vermont anticipates meeting the 90 X 50 goal by generating half of the State's electricity needs in-state and importing the other half.

Westford's renewable energy targets were derived from the county-level targets contained in the 2018 Chittenden County ECOS Plan. The County-level targets represent a low and a high range. The low range is based on Chittenden County containing 15% of the state's energy resource area. The high range is based on the County being home to 25% of the state's population. The municipal target for Westford is then allocated based on an average of population and electricity consumption in Westford and does account for existing renewable energy generation. For more information on the target methodology, see the 2018 Chittenden County ECOS Plan (www.ecosproject.com)

Prime solar or wind areas are areas where models show the appropriate conditions for electricity generation, and where there are no constraints. Base solar or wind areas are areas where models show the appropriate conditions for electricity generation but where there are possible constraints which must be considered during development and may reduce the development potential of a site. See the discussion of constraints in the land use and energy generation siting section. Westford's land available for wind and solar generation and generation potential are based on models of the elevation, slope, and aspect of land, or modeled wind speed (Tables 15 and 165). These models do not remove existing impervious surfaces.

Hydro Electric Energy

Currently there are no documented hydro plants in the town of Westford. The Browns River is the only major tributary in the town however, based on current technology, there is minimal potential for development of this resource. Privately owned micro-hydro systems may provide some level of hydro power to Westford but these systems will be too small to significantly impact the electric power usage of the town.

Biomass Energy

Biomass is organic matter that can be converted to energy in a variety of ways. Westford is ideally suited for developing sustainable biomass energy production. Our working landscape includes sufficient forest and arable lands that yield a variety of wood products and crops suitable for the sustainable production of energy and related products.

At present, Westford only harvests firewood and woodchips from our forestlands. Map 10provides an overview of the woody biomass resource found in Westford. This is the simplest form of biomass energy. Beyond burning wood, biomass can be harvested and fed into digesters to produce methane powered electricity, pressed into fuel pellets for heating, or refined into biodiesel or ethanol. The feasibility of biomass generation in Westford is currently unknown but considered to be limited due to the scale of such systems.

While an attractive option for a rural community, more research must be done on the viability of biomass digesters for energy production. It is believed that there is not enough source material available in the community to support such a system. We also do not have enough information at this time on the acreage needed for the physical plant or regulations around its placement.

Table 27. Land Available for Wind and Solar Generation

	Prime Potential	Base Potential
Solar	792 acres (3% of town)	3,904 acres (16% of town)
Wind	477 acres (2% of town)	4,059 acres (16% of town)

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

Table 28. Projected Renewable Electricity Generation Potential

	Power (MW)	Energy (MWh)
Rooftop Solar*	1.6	1,990
Ground-Mounted Solar* – Prime	99	121,478
Ground-Mounted Solar* – Base	65	79,801
Wind – Prime	19	58,538
Wind – Base	162	497,739
Biomass	13,714 acres	

Source: CCRPC and the Department of Public Service

*Rooftop solar potential is calculated by assuming that 25% of residential rooftops, 25% small commercial rooftops, and 50% of large commercial 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.

Table 29. New Renewable Electricity Generation Targets

	2025		2035		2050	
	Low	High	Low	High	Low	High
Generation Targets – Any Technology (MWh)	1,657	2,850	3,313	5,701	5,798	9,976

Sources: LEAP Model and CCRPC Modeling

These targets are in addition to what the municipality is already generating.

7.2.11 Building Energy Use

Public Buildings
The Town's and School District's owned buildings and infrastructure and their primary fuel sources are listed below:

1. Westford School - wood chips, oil, electric & use of all of fuels listed for domestic hot water (dhw)
2. Town Garage & Fire Department – oil & electric for dhw
3. Town Trucks & Equipment – gasoline & diesel fuel
4. Town Office – oil, electric for dhw & central air conditioning
5. Public Library –electric for heat, air conditioning, and dhw
6. United States Post Office – oil, electric & oil for dhw

Although the Post Office is a leased federal building, Westford citizens pay federal taxes to maintain the building which is heated with oil. The post office was once located at the Town Common but is now located outside of the Town Center on Route 128 and is mostly accessed by motorized vehicles using fossil fuels.

Other Public Oriented Buildings
1. Brick Meeting House – oil & propane
2. Westford Common Hall - oil

The Town maintains records of fuel use as part of standard financial records but does not proactively track or manage energy use. Historically, energy efficiency and weatherization have been considered on a first cost basis and not a life cycle cost basis for the municipally owned buildings.

In 2009, the Town was awarded a Climate Action Grant to upgrade the Town Office building to reduce its energy use and therefore its carbon emissions. The Westford Library and the Westford Common Hall also applied but did not get awarded the same grant. The Town Office and Library have both had insulation and heating system upgrades, as of 2015.

Privately Owned Buildings
State law has residential and commercial energy codes which mandates the filing of a self-certifying "Residential Building Energy Standards" certificate with the Town Clerk. In 2014, the Town began requiring that these certificates be recorded in the Westford Land Records prior to the issuance of a Certificate of Occupancy.

In 2013, the Town of Westford voted to be a Property Assessed Clean Energy District (PACE). PACE allowed for residential only renewable and energy efficiency projects to be funded via a special tax assessment on properties that use PACE. No residences other than those that use PACE for a particular project pay the tax assessment. As of 2018, the PACE program has been closed.

The Town Office personnel hand out State supplied Energy Code Handbooks and materials upon request. In 2008, the Town sponsored a workshop for residents funded by the Agency of Natural Resources "Button-Up Vermont" largely in response to the increase of heating fuel

prices, during the summer of 2008. In 2017, the Westford Energy Committee once again participated in the "Button Up" initiative, holding a workshop at the library and providing information and LEDs to residents at the Turkey Trot.

In the spring of 2009, the Town appointed an Energy Committee to continuously seek means to reduce energy costs (economic and environmental) through-out the town by:

1. Assisting the Planning Commission in the development of energy related regulations.
2. Providing assistance and/or information to town boards (Select board, Planning Commission, Conservation Commission, etc.).
3. Providing educational opportunities for citizens in energy conservation, renewable energy, environmental sustainability, and global warming.
4. Being a general information resource and advocate for the citizens of the Town of Westford.
5. Conducting energy studies and projects as directed by the Selectboard.

In 2014, the Planning Commission drafted regulations which would grant density bonuses to developments that include small homes (<1,200 sq. ft.) in hopes of encouraging and incentivizing smaller, more energy efficient home design.

Environmental constraints are categorized as known constraints or possible constraints. The presence of a known constraint signals that development, including renewable energy generation, is prohibited. The presence of a possible constraint means that impacts from development, including renewable energy generation, must be minimized. The local constraints identified below are drawn from policies included in Chapter 8 on Natural Resources and Chapter 9 on Land Use.

One of the factors that may limit the development of large-scale renewable energy systems in Westford is current electrical distribution system. Typically, large scale power generating plants (100kWac and larger) require a three-phase distribution system to transmit the power from the point of generation to the distribution substation. The feasibility of developing such infrastructure will depend on the size and location of the proposed renewable energy generating facility.

The potential for wind energy within Westford is very limited due to the low wind speeds, low narrow ridge lines, and limited access to the ridgelines. In addition, Westford limits all development within the town to areas with slopes less than 25%. The current models of larger scale wind turbines (1.0 MW and greater) have rated wind speeds in the 25-35 mph range. This means that for Westford most wind turbines will have a low capacity factor, high maintenance costs, and produce minimal amounts of energy.

7.2.12 Land Use & Energy Generation Siting

Land use is an important consideration in meeting Westford's energy needs. While we want to encourage the development of renewable energy, in particular small scale solar, the development of renewable energy generation facilities must follow the same standards that apply to all other development. Act 174 of 2016, established a new set of municipal energy planning standards for renewable energy generation facilities. Plans that follow these standards can gain a Determination of Energy Compliance which gives a municipality's land conservation measures and specific

policies substantial deference (greater weight) in the Section 248 process for siting energy generation. The land conservation measures and other specific policies consider factors including renewable energy resource availability, environmental constraints, and the land use and natural resource policies of this plan, found in this Chapter as well as Chapters 8 and 9.

Some areas are not appropriate for development including renewable energy generation facilities because of local or state restrictions on development. The State of Vermont has defined certain resources as known and possible constraints which are protected by the ECOS Regional Plan and state agency review during the Public Utility Commission review process. The Town of Westford has added additional constraints based on local policy.

Known constraints are areas in which development, including renewable energy generation, is not appropriate. Known constraints defined by the State of Vermont are:

1. FEMA Floodways (State)
2. DEC River Corridors
3. National Wilderness Areas
4. State-significant Natural Communities
5. Rare, Threatened, and Endangered Species
6. Vernal Pools (confirmed and unconfirmed)
7. Class 1 and 2 wetlands (VSWI and advisory layers)

Known constraints defined by the Town of Westford are:

1. Deer Wintering Areas
2. Ledge Outcroppings
3. Flood Hazard Overlay
4. Water Resources Overlay
5. Slopes 25% or greater

These local constraints are protected by the Town of Westford's land use regulations and by related policies in Chapters 8 and 9.

Possible constraints are areas in which the effects of development, including renewable energy generation, may need to be mitigated. Possible constraints defined by the State of Vermont are:

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

*While these resources are defined as possible constraints by the State of Vermont, the Town of Westford regulates these resources more strongly than the State and considers them known constraints.

Maps of both wind and solar generation resources and known and possible constraints can be found in Appendix A.

7.2.13 Transportation

Westford's largest economic and environmental energy-use impact is due to transportation. A large majority of Westford's residents commute to places of business and trade outside of Town using fossil fuel (gasoline and diesel). Transportation is covered in Chapter6 of this Plan. Energy issues related to transportation are within the scope of that Chapter.

Town surveys have shown that residents would support some type of carpooling (see survey results in appendix). There are a of couple carpooling options available in the state – Zimride, GoVermont and Vanpool. The town will provide information on these services so residents can learn more. In addition, the town currently has a park and ride located by the town common.

At this time, Green Mountain Transit does not have a bus route that includes a stop in Westford. If interest grows, the town will work with GMT to see if adding a stop is possible. In the future, there may be an opportunity to work with CarShare to add a location near the town common.

With the growth of electric vehicle ownership, it makes sense to work with local electric utilities to determine the feasibility of adding a charging station in the town center. The town should collaborate with GMP, VEC, and Efficiency Vermont to explore funding opportunities.
The town has numerous diesel vehicles. The Select Board should undertake a study of biodiesel and town vehicles. A no idling policy should also be enforced for all town vehicles.

7.3 Energy Goals & Objectives

1. **Increased Awareness** - As a community we will strive to increase awareness about the economic and environmental cost of energy.

2. **Energy Efficiency & Reduction Investments** - We will advocate for affordable and sustainable operation of our buildings and equipment by encouraging energy efficiency investments and a reduction in fossil fuels for heating in existing structures, especially town owned buildings, as well as the promotion of high-performance building practices for new construction.

    a. Identify municipal buildings that would be good candidates for cold climate heat pumps and develop a plan and schedule to add the heat pumps to those buildings.
    b. Develop policies for evaluating investments in infrastructure that consider energy efficiency, for example making purchasing decisions with life cycle analysis and building operation guidelines in mind.
    c. Work with Efficiency Vermont, utilities, Vermont State Weatherization Program to offer workshops and educational opportunities to residents on efficiency in new construction, retrofits, and conservation practices, promotion of heat pumps (e.g. air source and geothermal), and advanced wood heating equipment

d. Continue to provide the Vermont Residential Building Energy Standards and Efficiency Vermont program information when residents apply for municipal land use permits that include alterations or construction of a building.
e. Continue to require that energy code certificates be submitted to the town for all new building construction as well as for existing buildings (additions, alterations, renovations, and repairs).
f. Review and consider adoption of the state's stretch energy code as the baseline energy code.
g. Provide incentives (e.g. density bonuses) to developments located in an area identified as appropriate for growth that exceed the state's stretch energy code.
h. Support the use of ground-source heat pump heating and cooling systems for new construction.

3. **Renewable Energy Investment** - The town of Westford will increase our investment in renewable energy for public and private use throughout the town.

a. Identify managed forest lands that could supply wood chips and cord wood.
b. Identify potential producers of food and farm waste (farms, food processors, restaurants, schools, institutions) that could potentially host a farm or food waste digester.
c. In order to promote investments in cleaner transportation options, like electric vehicles, the town will investigate the siting of a charging station in or near the town common.
d. Consider replacing town owned vehicles with biodiesel, plug-in hybrid, or plug-in all-electric vehicles.
e. The Town of Westford will consider adopting a solar screening ordinance.
f. The Town of Westford will work with residents to identify additional preferred sites for renewable energy generation.

4. **Vermont Comprehensive Energy Plan** - The Town of Westford supports the generation of new renewable energy generation projects to meet the Vermont Comprehensive Energy Plan's goal of using 90% renewable energy by 2050, in a manner that is cost effective and respects the natural environment. Specifically, Westford's renewable energy generation target range is an additional 5,798 MWh (Megawatt hours) of energy to meet the low target or 9,976 MWh to meet the high target. Currently, Westford generates 411 MWh of renewable energy. The targets are technology neutral, meaning that they can be met with any mix of technologies. The following statements are Westford's renewable energy generation facility siting policies and will inform Westford's policy on preferred sites.

5. **Siting** - The policies below should be applied for renewable energy generation development subject to section 248 review by the Public Utility Commission. To determine an appropriate location for a facility, review the constraints listed in the Land Use and Energy Generation Siting section of this chapter to identify natural resource constraints and associated policies in Chapters 8 and 10. The town especially encourages renewable energy generation development according to the following policies.

a. Site renewable generation to avoid known constraints and to mitigate impacts to possible constraints.
b. Westford prefers that solar generation, including but not limited to net metering facilities, be located on the following types of locations: 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 been allocated more than 50 percent of the net-metering system's electrical output.

c. Locate energy generation proximate to existing distribution and transmission infrastructure with adequate capacity and near areas with high electric load (see Green Mountain Power's Solar Map).
d. Locate ground-mounted solar, larger than 15 kW AC, and wind turbines with a hub height larger than 30 meters (98 ft.) outside of the designated village center and historic district on the State or National Register.
e. Locate wind generation in areas with high wind potential, such as the prime and base wind potential areas shown on Map 12.

6. **Public Education** - The Town of Westford will educate residents and provide opportunities for residents to reduce vehicle miles traveled and decrease use of fossil fuels for transportation.

a. Work with carshare Vermont to add a location at the town common.
b. The town will consider a no idling policy.
c. Publicize GoVermont! and Zimride to increase knowledge of and use of ride share, vanpool, public transit, and park and-ride options.
d. Publicize the Drive Electric Vermont website to connect residents with electric vehicle information and incentives.
e. Partner with Drive Electric Vermont, nonprofit organizations, vehicle dealers, and/or state agencies to organize high-visibility events where people can see and test drive EVs, such as county fairs, energy fairs, and summer festivals. Events should also leverage local newspaper and public access coverage to showcase residents and organizations that are helping to propel the transition to EVs
f. Update municipal road standards for maintenance and new construction to reflect Complete Streets principles.
g. Apply for state grants including the VTrans Local Projects section grants and Vermont Department of Health grants for active transportation projects including bike and pedestrian infrastructure, improved signage, bike racks, and crosswalk improvements.

8 NATURAL RESOURCES & FEATURES

8.1 Policy

It is policy of the Town of Westford to maintain the rural character of the Town by supporting appropriate residential and commercial growth that is consistent with our goals of preserving and conserving natural resources and features. Conservation and preservation of these resources is fundamental to the Town's rural character, ecological integrity, biodiversity, and local economy.

8.2 Introduction

Westford contains natural resources and features that distinguish it from several of the neighboring towns. Towns to the north, south, and west have seen more growth over the years resulting in diminished natural resources. Wilder areas to the east, continuing toward the spine of the Green Mountains, are more rural with larger areas of land that is valuable for its natural processes and smaller population densities. Most of Westford is heavily forested with wooded swamps, ponds, rivers, streams, marshes, and beaver flowages interspersed throughout the forests, meadows, and agricultural land. There is a wide array of habitats, making Westford home to many of the species of plants and animals native to the northern hardwood forest and other natural areas.

In rapidly urbanizing Chittenden County, Westford serves as an important natural area that is home to many species of flora and fauna and serves as a wildlife corridor to habitat in more remote, largely contiguous, open space to the east. These forest blocks, along with agriculture lands, are at the core of the rural character of our state and our town. Westford is located on the border between largely undeveloped natural resources and the sprawl of Vermont's largest city.

8.3 Definitions

The following definitions apply to the terms used in this chapter and the document as a whole.

Agriculture

1. The cultivation or other use of land for growing food, fiber, Christmas trees, maple sap, or horticultural and orchard crops;
2. The raising, feeding, or management of livestock, poultry, fish, or bees;
3. The operation of greenhouses;
4. The production of maple syrup;
5. The on-site storage, preparation, and sale of agricultural products principally produced on the farm;
6. The on-site production of fuel or power from agricultural products or wastes produced on the farm; or
7. The raising, feeding, or management of four or more equines owned or boarded by the farmer, including training, showing, and providing instruction and lessons in riding.

Conservation

1. The management of land and water to preserve them for future generations.

2. The careful use of natural resources, so that they are not wasted or lost;
3. Preservation, protection, or restoration of the natural environment, natural ecosystems, vegetation, and wildlife; or
4. Preservation, repair, and prevention of deterioration of archaeological, historical, and cultural sites and artifacts.

Deer Wintering Habitat
Areas of mature or maturing softwood cover, with aspects tending towards the south, southeast, southwest, or even westerly and easterly facing slopes.

Designated Open Space
Planned Unit Development classified open space which provides continual conservation of significant natural resources, natural processes, wildlife habitat, agricultural and silvicultural practices, active and passive recreation, and/or other public benefit.

Endangered Species
Refers to species whose continued existence as a viable component of the nation or state's wild fauna or flora is in jeopardy of extinction.

Forest Block
A contiguous area of forest in any stage of succession and not currently developed for non-forest use. A forest block may include recreational trails, wetlands, or other natural features that do not themselves possess tree cover, and uses exempt from regulation under 24 V.S.A. §4413(d).

Forest Fragmentation
The division or conversion of a forest block by land development other than by a recreational trail or use exempt from regulation under 24 V.S.A. §4413(d).

Forestry
The science, art, and craft of creating, managing, using, conserving, and repairing forests and associated resources, in a sustainable manner to meet desired goals, needs, and values for human benefit.

Grassland
An area, such as a prairie, meadow, or farmland of which the natural vegetation consists largely of perennial grasses.

Mast Stand
'Mast' is a term commonly used by foresters and wildlife biologists to describe the seeds of shrubs and trees that are eaten by wildlife. 'Hard mast' refers to nuts (especially those of beech and oaks), whereas 'soft mast' refers to berries of a variety of species. Hard mast is generally acknowledged as an important wildlife food source.

Natural Resources
Air, soil, water, flora, fauna, habitat, and wildlife corridors.

Open space
An area of undeveloped land and/or working lands that is valuable for natural processes and wildlife, agricultural and silvicultural purposes, active and passive recreation, and/or providing other public benefit.

Preservation
1. To maintain in an unaltered condition;
2. To protect from injury, peril, or harm; or
3. To keep intact and unchanged.

Rare Species
At high risk of extinction or extirpation due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors

Recreational Trails
A corridor that is not paved and that is used for hiking, walking, bicycling, cross-country skiing, snowmobiling, all-terrain vehicle riding, horseback riding, and other similar recreational activity.

River Corridor
The land area adjacent to a river that is required to accommodate the dimension, slopes, planform, and buffer of the naturally stable channel and that is necessary for the natural maintenance or natural restoration of a dynamic equilibrium condition, as that term is defined in 10 V.S.A. §1422, and for minimization of fluvial erosion hazards, as delineated by the Agency of Natural Resources in accordance with their Flood Hazard Area and River Corridor Protection Procedures.

River Corridor Protection Area
The area within a delineated river corridor subject to fluvial erosion that may occur as a river establishes and maintains the dimensions, pattern, and profile associated with its dynamic equilibrium condition and that would represent a hazard to life, property, and infrastructure placed within the area. The river corridor protection area is the meander belt portion of the river corridor without an additional allowance for a riparian buffer to serve the functions of bank stability and slowing flood water velocities in the near-bank region.

Rural Character
Rural character is comprised of sparsely populated, undeveloped, and working (primarily of agriculture, forestry, and silviculture nature) land. Large open spaces surround the immediate boundaries of a defined Town Center Area that functions as the center of community and commerce activities traditionally associated with rural living/character. Buildings outside of the Center demonstrate a strong relationship to the surrounding working landscape and blend easily with their surroundings. Life is quiet, absent of urban sounds, night sky that is void of light pollution, and its disturbances. Views are unimpeded with rolling meadows, wooded hillsides, and pastured animals. Roads are mainly dirt with light traffic, where farm machinery, bicycles, and horses are common travelers and gardens, firewood, and fresh air are considered necessities.

Most of all it's the people who have created and maintain it as rural. They provide the soul of rural tranquil character, people who are deeply connected to the land with the stories to prove it.

Figure 13. Rural Character Illustrations

Significant Natural Communities

An interacting assemblage of plants and animals, their physical environment, and the natural processes that affect them. These assemblages of plants, animals and habitat are uncommon and/or exemplary examples of a natural community in the Region and/or State.

Significant Natural Resources

Land that supports one or more of the following ecological principles:

1. Maintain large, intact patches of native vegetation.
2. Protect habitats that are key to the distribution and abundance of priority species.
3. Protect exemplary natural communities and aquatic features.
4. Maintain connections among wildlife habitats for movement and gene flow.
5. Maintain significant ecological processes (such as those associated with wetlands and floodplains) for recharging groundwater and filtering surface water; or
6. Contribute to regional persistence of uncommon, rare, threatened, and/or endangered species by protecting their habitat locally.
7. Ensure that the full range of native biological diversity is maintained by protecting ecosystems that are poorly represented in the landscape.

Silviculture

The art and science that promotes the growth of single trees and the forest as a biological unit.

State Rank and Global Rank

The rarity, abundance, or endangerment of a native taxon within Vermont's geographic boundary or throughout its range, respectively. Ranks are as follows:

1. Very rare (Critically imperiled): At very high risk of extinction or extirpation due to extreme rarity (often 5 or fewer populations or occurrences), very steep declines, or other factors
2. Rare (Imperiled): At high risk of extinction or extirpation due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors
3. Uncommon (Vulnerable): Moderate risk of extinction\extirpation due to restricted range, relatively few populations or occurrences (often 80 or fewer), recent and widespread declines, or other factors
4. Common to uncommon (Apparently secure): locally common or widely scattered to uncommon, but not rare; some cause for long-term concern due to declines or other factors; or stable over many decades and not threatened but of restricted distribution or other factors
5. Common (Secure): widespread and abundant

Stewardship
The careful use, management, and conservation of land and natural resources to retain value and ecological function for future generations.

Threatened Species
A species whose numbers are significantly declining because of loss of habitat or human disturbance, and unless protected will become and endangered species.

Uncommon and Common Species (Apparently Secure)
Locally common or widely scattered to uncommon, but not rare; some cause for long-term concern due to declines or other factors; or stable over many decades and not threatened but of restricted distribution or other factors.

Uncommon Features
Environments and geologic features not often seen in the Region or State and/or that faces threats to their continued existence in Vermont.

Uncommon Species (Vulnerable)
Moderate risk of extinction\extirpation due to restricted range, relatively few populations or occurrences (often 80 or fewer), recent and widespread declines, or other factors.

View Shed
View sheds are often spaces that are readily visible from public areas, such as, from public roadways and/or public lands. An area of land, water, or other environmental element that is visible to the human eye from a fixed vantage point. View sheds are areas of particular scenic value that are deemed worthy of preservation against development or other change.

Wildlife Corridor
Land or water, or both, that links patches of wildlife habitat within a landscape, allowing the movement, migration, and dispersal of animals and plants and the functioning of ecological processes.

Working Lands
Land actively used for forestry, silviculture, or agricultural operations and/or containing prime forest and/or agricultural soils.

8.4 Inventory & Discussion

8.4.1 Significant Natural Resources

Significant natural resources are resources identified by the Town as being crucial to maintaining healthy ecosystems; biodiversity; uncommon features, uncommon, rare, threatened, or endangered species; water quality; rural character; and productive working lands. These natural resources are often located in areas unsuitable for development and are characterized by steep slopes, lack of access, hill tops, wet areas, and/or soils not suited for wastewater disposal.

The following resources/areas shall be designated as the Significant Natural Resources:

1. Deer wintering habitat, as depicted on Town Plan Map 3, or using the best available data;
2. Uncommon species and/or features, as depicted on Town Plan Map 3, or using the best available data;
3. Rare, threatened, or endangered species, as depicted on Town Plan Map 3, or using the best available data;
4. Significant natural communities, as depicted on Town Plan Map 3, or using the best available data;
5. Forest Blocks, as depicted on Town Plan Map 10, or using the best available data;
6. Grassland and bird habitat, as studied and/or using the best available data;
7. Mast Stands, as studied and/or using the best available data;
8. Vernal Pools, as studied and/or using the best available data;
9. Flood Hazard Overlay, Fluvial Erosion Hazard Areas, and Water Resource Overlay Districts, as depicted on Town Plan Map 5; and
10. Any other natural resources that meet one or more of the seven ecological principles of significant natural resource.

In Vermont, natural resource inventories have taken place at the county and watershed level, with regard to significant natural communities. However, only a few towns have completed such inventories. Identification of significant natural resources and communities can help to focus town efforts on those areas that need conservation and management attention. Completing a natural resource inventory of the Town can further focus stewardship and protection needs and can assist with identification of important wildlife habitat and corridors. Identifying these resources is a powerful tool for developing effective land management plans, determining conservation priorities, and increasing our understanding of the natural world.

8.4.2 Significant Natural Communities

The Vermont Fish &Wildlife Department (VFWD) currently recognizes 80 upland and wetland natural community types in Vermont. State ranks range from 1 (extremely rare) to 5 (common and widespread) and are based on the number of known examples, the total area occupied, and the degree of threat. Each example of a natural community that is evaluated by the VDFW's Wildlife Diversity Program is also assigned a quality rank. This measure is intended to compare occurrences of a particular community type with others statewide or with types in a particular biophysical region in the state. The quality ranks range from excellent (A) to poor (D) and are based on specifications developed for each of the 80 natural community types. The overall significance of a natural community occurrence is tied both to its state rank - how rare it is in Vermont - and to its quality rank, a measure of the size and condition of that particular occurrence. Source: VT Dept. of Fish & Wildlife, 2014

Westford contains a number of significant natural communities recognized by VFWDas depicted on Town Plan Map 3, including Stewart Hill, Mountainview Bog, Hidden Swamp, Westford Swamp (partly in Essex) and a sandplain forest. Westford's significant natural communities range from rare to uncommon and are generally in excellent to good condition. These communities must receive the highest level of protection and applicants must submit a natural resource inventory prepared by a qualified professional as part of the application. Westford makes protection of significant natural communities a top priority of the Town by giving them the highest level of protection.

8.4.3 Uncommon, Rare, Threatened & Endangered Species

The VFWD uses a ranking scheme that describes the rarity of species in Vermont. The range is from S1 (very rare) to S5 (common and widespread). Species are assigned a rank based on the number of known examples, the population size, and the degree to which the populations are threatened.

Threatened species are defined in 10 V.S.A. Chap. 123 section 5402 as a species whose numbers are significantly declining because of loss of habitat or human disturbance and unless protected will become an endangered species. As of July 2003, there were 195 species of plants and animals in Vermont that are protected by the Vermont Endangered Species Law (10 V.S.A. Chap. 123) and assigned a status of either threatened or endangered. Some of these species that occur in Vermont also have a federal status of threatened or endangered and are protected by the Federal Endangered Species Act (P.L. 93-205).

Endangered and threatened species are defined in both State and Federal law. State law defines endangered species as "a species listed on the state endangered species list under {10 V.S.A. Chap. 123 section 5401} or determined to be an 'endangered species' under the federal Endangered Species Act. The term generally refers to species whose continued existence as a viable component of the state's wild fauna or flora is in jeopardy." Any taking, which may include harassment or harm to a state threatened or endangered species, is a criminal offense unless permitted by the Agency of Natural Resources.

Protecting and restoring uncommon, rare, threatened, and endangered species represents one of the most difficult conservation challenges in Vermont. Source: VT Dept. of Fish & Wildlife, 2014

Westford harbors its own set of endangered, threatened, rare, and uncommon plant and animal species that contribute to the overall diversity of the town, region, and state as identified on Town Plan Map 3. Thus far, VT Fish and Wildlife Department have identified two types of uncommon and vulnerable birds at three locations, one type of uncommon butterfly at one location, four types of uncommon and vulnerable fish located in Morgan Brook and the Browns River, and ten types of plant that are rare or uncommon and vulnerable located at numerous sites, including Hidden Swamp, Westford Swamp, Mountainview Bog and Stewart Hill. These species should receive the highest level of protection and applicants must submit a natural resource inventory prepared by a qualified professional as part of the application.

8.4.4 Deer Wintering Habitat

White-tailed deer in Vermont live near the northern limit of their range in eastern North America. To cope with Vermont's severe climatic conditions, deer have developed a survival mechanism that relies upon the use, access, and availability of winter habitat. These habitat areas are known as deer wintering areas, deer winter habitat or more commonly 'deer yards.' Deer winter habitat is defined as areas of mature or maturing softwood cover, with aspects tending towards the south, southeast, southwest, or even westerly and easterly facing slopes.

Deer wintering areas vary in size from a few acres to over a hundred acres and provide essential relief to deer from winter conditions. These areas of softwood cover provide protection from deep snow, cold temperatures, and wind. They provide a dense canopy of softwood trees, a favorable slope and aspect generally moderate elevation, and low levels of human disturbance in winter. The softwood species that compose these areas are most commonly hemlock and white pine in the southern part of the state, and white cedar, spruce, and fir in the north. Energy loss by deer inhabiting these sites is minimized, and survival is favored in deer wintering areas.

Wintering areas do not change significantly between years and can be used by generations of deer over many decades if appropriate habitat conditions are maintained. Deer annually migrate, often several miles, from fall habitats to wintering areas. A single wintering area often serves deer from large areas of a town and in some cases from surrounding towns as well. Residential, commercial, or industrial development within or adjacent to a deer wintering area decreases the amount of winter habitat available to deer and has an effect on an area's deer population, eventually reducing the number of deer within the area. Without adequate winter habitat, northern populations of deer would be subject to extreme fluctuations due to heightened levels of winter mortality during moderate and severe winters.

In addition to benefits for deer, dense softwood stands provide critical winter food supplies for a variety of other wildlife species including porcupines, snowshoe hare, fox, fisher, coyotes, bobcats, crows, ravens, and red and white-winged crossbills, to name a few. Other wintering birds routinely find shelter from winds in these conifer stands. Logging can be either detrimental or beneficial to the habitat depending on the harvest method employed and the overall sensitivity shown by the logger and landowner to maintaining these areas of dense softwood cover.

Conserving deer wintering areas is essential to maintaining and managing white-tailed deer in Vermont. Deer wintering areas make up a relatively small percentage of the land base of most towns. In fact, only 8% of the forested landscape of Vermont has been mapped as deer winter habitat, so it is not an abundant habitat across the state. Westford currently contains four mapped deer wintering habitats. However, the size of these areas have been diminishing rapidly due to deforestation (logging) and development in and/or in close proximity to these areas. Source: VT Dept. of Fish & Wildlife, 2014

8.4.5 Mast Stands

In Vermont, 171 species are known to use beech or oak stands as habitat including 16 amphibian, 9 reptile, 102 bird, and 44 mammal species. These include species on federal and state endangered/threatened species lists, permanent residents, and migratory birds. These mast stands can occur as discrete stands or patches on the landscape and can be delineated as such (similar to delineating a wetland or deer wintering area).

The reliance of black bear on hard mast has become so well established that the VFWD considers areas of beech or oak with a history of bear feeding use to be necessary wildlife habitat, as defined by Act 250. A number of studies have documented the relationship between hard mast and bear nutrition. Elowe and Rogers (1989) state that the availability of hard mast in the fall affects the minimum reproductive age of bears, productivity rates, and cub survival. The authors also reported that female bears exhibit reproductive 'skips' after poor mast years and that fall weight gains were keyed to mast availability. Simply put, these stands of beech and oak used by black bear are essential for the survival and reproduction of this species in Vermont.

For example, the American beech is a common tree species associated with Northern Hardwood Forest natural communities. However, concentrated stands of beech that are used by black bears are not common; they represent a small fraction of the overall forested landscape of the state, hence their significance for conservation planning. Development within the boundaries of the beech/oak stand obviously directly affects the productivity and bear use of the stand, but even development near a mast stand can diminish the function and use of this habitat. Source: VT Dept. of Fish & Wildlife, 2014

Westford does not have any information on and/or delineation of mast stands located in Town. However, natural resource inventorying and mapping of this resource should be made a priority of the Town.

8.4.6 Grassland & Bird Habitat

Today, most of Vermont's grassland habitats occur in the Champlain Valley and, to a lesser extent, in the Connecticut River Valley and the area around Lake Memphremagog. There are other grasslands of various types and sizes scattered across the rest of the state. Most grasslands are associated with current or past agricultural practices. There are, however, grasslands that are the result of other human activities and are maintained for specific purposes. Most of Vermont's grasslands are in private ownership although the state and federal government own small areas of this habitat. Since a probable historic high during the agricultural boom of the 1800s, populations of grassland birds have declined substantially in Vermont, primarily as a result of habitat loss. Habitat loss has resulted from forest succession after farm abandonment, changes in agriculture practices, and residential, commercial, and industrial development. Other potential threats include the extensive use of agricultural pesticides and changes in wintering habitats outside of Vermont. Source: VT Dept. of Fish & Wildlife, 2014

Conversion of natural grasslands elsewhere in the Northeast and the Midwest led to the decline of grassland birds in their historic natural habitats and has prompted Vermont, and the Northeast in general, to take on a greater role in the conservation of grassland birds. The North American Bird Conservation Initiative (NABCI) has designated grassland birds as a priority species in Vermont. Westford does not have any information on and/or delineation of grasslands and/or bird habitat located in Town. However, bobolinks and egrets have been observed in Town. Inventorying and mapping of this resource should be made a priority of the Town.

8.4.7 Forest Blocks

A forest block is an area of forested land with little or no human development or roads and can include a mix of working forest and natural habitat. There may be various age classes of forest cover and various habitats such as wetlands and meadows which are all part of the overall contiguous habitat complex. There is no minimum number of acres that define a forest block, but more important is to consider the overall configuration and connections to other contiguous areas. Connecting lands or wildlife corridors are required to ensure that various habitats can be accessed by species that require resources in different parts of the forest that may be located small or large distances from each other. The configuration of forest blocks is also important because a high degree of forest edge may make the overall area less suitable to some species than a similar forest block with a regular shape and fewer edges.

When development occurs within a forest block, the size and configuration of the formerly contiguous area changes. More forest edge is created, and critical habitat may be destroyed. More development in the area can create the effect of irregularly shaped contiguous forest. Given the significant risk of continued fragmentation of forest habitat, due to development, it is beneficial to conserve large areas to maintain forest habitat and connections to other habitat outside of Westford's borders. Contiguous habitat can include working lands (e.g. silviculture). Through the use of forest planning, management, and best practices both goals of working forest lands and wildlife habitat with contiguous forest habitat blocks can be met. Source: VT Dept. of Fish & Wildlife, 2014

There are large forest blocks within the borders of Westford. Large clusters of open space representing over 10,000 acres are located on the eastern half of the town and range from the north to the south town borders. There are also tracts of over 2,000 acres near the western and south-central town border and a few additional pockets of several hundred and thousand acres of contiguous forest throughout town. Many of the larger contiguous areas continue into the neighboring towns of Cambridge, Underhill, Jericho, Colchester, Essex and Milton. Connectivity to the greater regional landscape should be taken into consideration in any conservation efforts.

8.4.8 Wildlife Corridors

Movement of animals from one habitat patch to another is the most common function associated with connecting habitat. This function is particularly important for wide-ranging animals, such as bobcats and black bears, or for animals that require a great deal of space to meet their daily life needs, such as barred owls or otter. Although connecting habitat is often associated with wide-ranging mammals, it is equally important for animals with relatively small ranges. Spotted salamanders, for example, use connecting habitat in spring to move from their hibernation sites to breeding pools. Some species roam vast areas on a daily or weekly basis, while others move more seasonally, as is the case with deer moving to and from wintering areas in Fairfax, Cambridge, Underhill, Jericho, Essex, Colchester, and Milton.

The broader ecological value of connecting habitat is to join fragmented pieces of habitat, thereby reducing the deleterious effects of habitat fragmentation and population isolation. Linking small or otherwise isolated habitat patches reduces the risk of local population extinctions by ensuring immigration, recolonization, reproduction, and exchange of genes for some plant and animal species.

While conserving corridors has great merit, conserving threads of vegetative cover within a developing landscape, most likely, would not maintain an area's ecological values and biological diversity. Nor will corridors alone meet the habitat needs of all of an area's plant and animal species. The conservation of large areas of undeveloped land with diverse habitat conditions and the maintenance of a sustainable working landscape, with vegetative corridors, are needed to support ecosystem functions and related public benefits.

Connecting (corridor) habitat is important because it does the following:

1. Allows animals to move freely across their range.
2. Allows plants and animals to colonize new habitat as climate change, succession, or other ecological processes force them to migrate.
3. Reduces the risk of population isolation and provides for the exchange of genetic information among populations of animals and plants.
4. Allows animals to access suitable habitat to meet their daily and annual life needs.
5. Allows seasonal movements (migrations) to essential range and habitat.
6. Allows young adult animals to access new range, away from natal range; and
7. Allows adult animals to interact with potential mates, thus improving reproductive success and genetic fitness. (VT Dept. of Fish & Wildlife, 2014)

Westford has a general east-west corridor in the southern half of the town, north-south corridors in the eastern and western sides of town, and numerous corridors associated with riparian areas conserved by the Water Resource Overlay District.

Many natural wildlife corridors have been cut off or reduced in size as a result of development and this often results in more human-animal interactions, especially on roads. The largest potential for wildlife road crossings can be identified by Map 10. The eastern side of town has a large forest block, which facilitates wildlife movement primarily north and south. However east-west movement is hindered by up to five roads in town. One of those roads is VT Route 128, which sees both higher traffic and higher speeds than local roads. Considering the inherent risk to wildlife and citizens of Westford well-being, it is important to accommodate safe wildlife corridors.

8.4.9 Working Lands

Westford has enjoyed a rich history of small, family farms working our Town's open and forested lands. Traditionally, agriculture, forestry, and silviculture products with their associated businesses contributed to the majority of household incomes well into the 1960s. Since then, Westford has experienced a steady decline in the number of family farms and the complete demise of lumber and wood working mills.

Today, the majority of residents commute to employment outside of Westford. Fewer residents work the land, yet Westford remains well suited for agriculture, forestry, and silviculture pursuits with large areas of forest and open land still actively managed. However, this landscape is threatened to be lost forever to urbanization and fragmentation as development pressures steadily increase. The desire to protect our Town's agriculture, forestry, and silviculture potential is supported by three motivating factors. First, the vast majority of Westford residents, when surveyed, support preservation and conservation of forest lands and open lands. Second, Vermont consumers are trending to more sustainable, localized agricultural products and Westford is ideally situated near the largest population density in the State to satisfy this growing demand. Third, maintaining and increasing forest cover is an important form of carbon sequestration in an effort to counteract climate change.

Current Use Program

As of 2019 Westford had 118 parcels, equating to 13,445 acres or more than $^1/_2$ of the town's total acreage, enrolled in the Vermont Current Use Program.

Agricultural Soils Mitigation

The Future Land Use Map provides guidance to the District Environmental Commission and to the Public Utility Commission (PUC) relative to agricultural soils mitigation. When a development, subject to Act 250 or Section 248, impacts agricultural soils mitigation of these soils is required. In general, Act 250 is structured to prefer "on-site" mitigation – that is, modifying the site design of the project so that the soils are not impacted (See § 6093(a)(2)). However, the District Commission may authorize "off-site" mitigation if "that action is deemed consistent with the agricultural elements of local and regional plans." (See 10 VSA § 6093(a)(3)(b)). During the PUC review process, the Agency of Agricultural, Food & Markets will comment on a project's impacts to agricultural soils.

Agricultural Soils Mitigation Policies

The language below defines appropriate circumstances under which "off-site" may be approved by the District Commission and the PUC for each Zoning District/Planning Area:

Common District – In light of this district's role as the center of community in Westford, off-site mitigation should be allowed throughout this district. Where a development contains affordable or senior housing, or provides for community wastewater treatment, mitigation fees should be waived or be at the minimum ratio allowed by statute.

Village District -- In general, off-site mitigation should be allowed in this district, except as discussed below. Where a development contains affordable or senior housing or provides for community wastewater treatment, mitigation fees should be waived, or be at the minimum ratio allowed by statute. However, the foreground meadows and fields on Route 128 should remain open. These foreground meadows should be targeted for mitigation purchases associated with development occurring elsewhere in Westford and Chittenden County. Contrarily, off-site mitigation should be allowed for subdivisions or developments that are eligible for a density bonus under the Westford Land Use and Development Regulations. These include developments that provide diverse housing options (senior housing, affordable housing, units meeting universal design standards, and/or units with less than 1,200 square feet of living space); or developments in which at least 80% of the land area will be permanently conserved through a conservation easement held by an appropriate public or nonprofit entity; or developments that provide a suitable site for a community wastewater that could reasonably serve development in the Common or Village District; or developments that provide public trail access and/or recreation areas; or developments that allow for vehicular connectivity by constructing a private road that will connect to adjacent property in the future.

Rural 3 District – Much of this area consists of prime agricultural soils. However, development below thresholds triggering Act 250 has resulted in the loss and fragmentation of much of these soils. As a result, much of this area is no longer viable for commercial agriculture. When possible, the remaining agricultural soils should be incorporated into developments as central greens, community gardens, or similar outdoor spaces. Off-site mitigation should be allowed for any development that contains entry level, accessible, affordable, or senior housing.

Rural 5 & 10 Districts – These areas contain much of the agricultural soils in Westford, as well as the majority of the agricultural enterprises in Town. These areas should be targeted for mitigation proposes associated with development occurring elsewhere in Westford and Chittenden County. Off-site mitigation should be allowed for subdivisions or developments that are eligible for a density bonus under the Westford Land Use and Development Regulations. These include developments that provide diverse housing options (senior housing, affordable housing, units meeting universal design standards, and/or units with less than 1,200 square feet of living space); or developments in which at least 80% of the land area will be permanently conserved through a conservation easement held by an appropriate public or non-profit entity; or developments that provide a suitable site for a community wastewater that could reasonably serve development in the Common or Village District; or developments that provide public trail access and/or recreation areas; or developments that allow for vehicular connectivity by constructing a private road that will connect to adjacent property in the future.

8.4.10 Geological Features

Westford's landscape can best be described as Vermont hill country. Rounded hills, generally ranging from 1000-1200 feet in elevation, are scattered throughout the town. Stewart Hill, elevation 1600 feet, is the highest hill in Westford. The north-flowing Browns River is the major water feature in town, feeding into the Lamoille River that drains into Lake Champlain. The Browns River and its tributaries drain almost the entire town. Unlike other areas of Vermont, the stream valleys in Westford and adjacent Essex are relatively broad with gentle gradients.

Westford shares similar bedrock geology with many other Vermont towns especially those located in the northern Green Mountains and adjacent foothills. A small arm of the Champlain Valley's limestone belt reaches into Westford just east of Bowman corners. Limestone is made up of calcium, which is an essential nutrient for plant growth, such that natural communities above limestone belts are often more biologically diverse. Underlain by quartzite and dolomite bedrock, this limey area encompasses Bald Hill and the hill immediately south. Non-calcareous schist and greywackes are the dominant bedrock types.

Topography

Westford's ponds, hillsides, woodlands, streams, wetlands, and scenic views are important elements of the quality of life for residents, other property owners, and visitors. Some of the topography is characterized by steep slopes which require special consideration with respect to planning and development. The nature of the soils on steep slopes in the Town is such that the land is exceptionally vulnerable to erosion and associated problems. Therefore, in order to protect the public health, safety, and welfare of individual landowners and owners of abutting properties, as well as to preserve the character of the natural resources and natural features that make Westford unique, this section is intended to guide the use of steeply sloping land within Town.

Development on or through areas with steep slopes poses a unique set of challenges:

1. To avoid undue or adverse impact to streams, ponds, and groundwater from the consequences of construction, erosion, storm-water runoff, of effluent from improperly sited or designed sewage disposal systems.
2. To preserve the natural topography, drainage patterns, vegetative cover, scenic views, and wildlife habitat.
3. To protect property from damage caused by erosion and landslide damage.
4. To protect unique natural areas; and
5. To provide reasonable access to properties for fire, public safety, or other emergency crews.

Westford's topography poses development constraints with regard to the ability to construct buildings and associated infrastructure on steep slopes. On-site waste disposal systems require relatively flat or rolling areas to function properly. Slopes greater than 15% are generally unsuitable for waste disposal systems. In addition, many of the soils found in steep slopes are unsuitable for waste disposal. Refer to Town Plan Map 3 and 4.

For these purposes, all areas within the Town with steep slopes with a grade 25% or greater shall not be developed for roads, driveways, structures, utilities, or wastewater disposal systems,

except a onetime exception may be made to allow for reasonable development on or access to a site. Refer to Town Plan Map 3. Note that Town Plan Map does not depict all steep slopes in Town and unmapped steep slopes are still subject to regulation.

Ledge Outcroppings

A ledge outcropping is a portion of bedrock protruding through the soil. All areas within the Town with ledge outcroppings shall not be developed for roads, driveways, structures, utilities, or wastewater disposal systems, except a onetime exception may be made to allow for reasonable development on or access to a site. Note that Town Plan Maps do not depict ledge outcroppings and must be identified in the application process.

Soils

The soils of Westford are typical of Vermont hill country. Glacial till covers most of the hills in town, separated only by the river corridor in approximate geographic middle of Town. The soils produced from the till are loamy in texture, often rocky and moderately well-drained to excessively well-drained. Except for the limey area west of Bowman Corners, these till soils tend to be acidic. The valleys, particularly those with elevations of 500 feet or less, have heavy soils derived from lake bottom sediments laid down by glacial Lake Champlain.

View Sheds & Ridgelines

While a detailed inventory of Westford's scenic resources has not been conducted, most residents agree there are many exceptional views. Spectacular views of Mt. Mansfield are visible on the east side of Woods Hollow Road. Along Rt. 128 there are views of the Browns River valley floor, Mount Mansfield, and the open spaces which characterize this area. Sweeping views of open spaces appear along the north side of the Cambridge Road. The beautiful scenery in Westford contributes to both the quality of life and the rural character that residents value. Whenever possible, development shall be sited in such a way as to preserve views of the mountain range and river valley floor from public roads and public lands.

8.4.11 Water Resources

Surface Waters

Surface waters include any body of water with a defined channel or depression or that exists throughout the year on the land surface; these typically include rivers, streams, ponds, and lakes. They are important as a source of drinking water for humans and wildlife, recreation, flood control, and for aesthetic value. The Browns River is the water feature that dominates Westford, traversing the Town from south to north. There are many smaller streams in Town, most of which empty into the Browns River or one of the many wetlands in Westford. There is public access to the Browns River near the Town Common for fire department use. Residents would like a more recreation-oriented public access to the river.

Vernal Pools

Vernal pools are small wetlands characterized by a lack of vegetation (though they may support some herbaceous wetland species) resulting from the persistence of standing water for a portion of the year. Vernal pools typically occur in small depressions in upland forests over a relatively impermeable substrate layer, but they also may be found in the depressions of some forested swamps. Although pools often lack woody vegetation, they are typically well shaded by the surrounding forest canopy. In the Northeast, many vernal pools start filling with the fall rains,

retain water, ice, and snow through the winter, and collect more water with spring rains and snowmelt. They may also be influenced by rising groundwater in the fall and spring. The pools typically lack inlets and outlets with the possible exception of outflow following heavy spring rains. A pool may be dry by mid-summer or may retain its water throughout the year in some wet years.

Vernal, or temporary, pools are perhaps best known as important breeding habitat for amphibians. Typical Vermont species that rely on vernal pools for reproduction include the mole salamanders (Spotted salamander, Blue-spotted salamander, and Jefferson salamander), and wood frog. All of these species may breed in other wetlands, including artificial pools and ponds but rely heavily on vernal pools to maintain their populations since they are free from predator species present in perennial waterbodies. For vernal pools to be effective breeding habitats for amphibian populations they must retain water for at least two months during the spring and summer breeding season, in most years, so that amphibians can complete their larval stage. The periodic drying of a vernal pool excludes populations of predatory fish and diving beetles that prey on amphibian larvae. Other animals use pools as well, such as fairy shrimp, fingernail clams, snails, eastern newts, green frogs, American toads, spring peepers, and a diversity of aquatic insects. Fairy shrimp are thought to be restricted to these temporary pools. The amphibians and invertebrates found in vernal pools constitute a rich source of food for various species of birds, mammals, and reptiles that may be attracted to the pools. Wood ducks, mallards, black ducks, and great blue herons are occasionally known to feed at these pools. Despite their small size and temporary nature, vernal pools are highly productive ecosystems.

Vernal pools and the organisms that depend on them are threatened by activities that alter pool hydrology and substrate as well as by significant alteration of the surrounding forest. Construction of roads and other development in the upland forests around vernal pools can result in negatively affecting salamander migration and mortality. Timber harvesting can have significant effects on vernal pools, including alteration of the vernal pool depression, changes in the amount of sunlight, leaf fall, and coarse woody debris in the pool, and disruption of amphibian migration routes by the creation of deep ruts. Even when the pool is dry, alteration of the depression substrate may affect its ability to hold water and may disrupt the eggs and other drought-resistant stages of invertebrate life that form the base of the vernal pool food chain. Source: VT Dept. of Fish & Wildlife, 2014

Westford contains innumerable vernal pools and currently does not consider them in planning and zoning but should investigate how to best protect these resources such as by encouraging silviculture to adhere to BMPs that avoid direct impacts to vernal pools.

Wetlands

Wetlands serve a wide range of functions and are beneficial to a variety of native plant and animal species as well as to the health, safety, and welfare of the general public. Wetlands provide fish and wildlife habitat, flood and erosion protection, nutrient and pollution filtration, groundwater recharge, aesthetic diversity, and sites for educational and recreational activities.

It is estimated that less than 5% of Vermont is currently wetland and that nearly 50% of Vermont's historic wetland area has been lost or severely impaired due to draining, dredging, filling, or excavation activities associated with industrial, residential, and agricultural activities.

Wildlife functions associated with wetlands in Vermont are some of the most diverse and sensitive. Vermont's wetlands support a myriad of waterfowl, wading birds, wetland-dependent furbearers, black bears, moose, amphibians, pitcher plants - the list goes on and on. These species all rely, in whole or in part, on wetland ecosystems for their survival.

Fish and wildlife that depend on wetlands for their survival tend to be easily disturbed or negatively affected by human activities. Residential development, for instance, close to a marsh that supports wading birds such as herons and bitterns is incompatible. Domestic activities normally associated with residential development can cause disturbance, temporary displacement, or complete abandonment of the wetland by a variety of sensitive wetland-dependent wildlife. Source: VT Dept. of Fish & Wildlife, 2014

Wetlands are scattered throughout the Town of Westford and are currently protected by a State buffer and a Town buffer. The Town will continue to support preservation of wetlands and wetland functions by enforcing its Water Resource Overlay District. Refer to Town Plan Map 5.

Riparian Areas

Riparian areas are ecosystems comprised of streams, rivers, lakes, wetlands, and floodplains that form a complex and interrelated hydrological system. These ecosystems extend up and down streams and along lakeshores and include all land that is directly affected by surface water. Riparian ecosystems are unique in their high biological diversity. They are characterized by frequent disturbances related to inundation, transport of sediments, and the abrasive and erosive forces of water and ice movement that, in turn, create habitat complexity and variability, resulting in ecologically diverse communities.

Riparian areas have a wide variety of plant and animal communities because of the dynamic nature of rivers, streams, lakes, and ponds. These communities form an interconnected food web that ranges from tiny microorganisms to bears and humans. This web also includes reptiles and amphibians, plants, waterfowl, songbirds, bats, mink, and otter. Healthy riparian ecosystems give life to all the species that inhabit them, as well as the species that use the lakes and streams near them, including those species that use bodies of water only at certain times during their life cycles, such as during breeding or migration. Due to climate change, maintenance of riparian buffers is the single most important action we can take to allow for flood resiliency, animal movement (species adjusting ranges), and water quality.

Riparian areas are important not only for the plants and animals that inhabit them, but also for what they provide to the waters near them. The downed wood, leaves, and similar organic material that riparian areas contribute to aquatic systems are important components of the food base and habitat structure in Vermont's water bodies. Mature trees in riparian areas also shade aquatic habitats, which helps to reduce water temperatures. Riparian vegetation is crucial in filtering overland runoff, thus protecting water quality; and in stabilizing stream banks, thus preventing excessive stream-bank erosion and sediment buildup in aquatic habitats.

These ecosystems protect our water quality for drinking and recreation, protect our investments from flood and ice flow damage, and provide for our recreation, education, spiritual wellbeing, and sense of place.

Conserving riparian areas is important to:

1. Water quality and aquatic habitat.
2. Terrestrial wildlife habitat for species that depend on riparian environments.
3. Significant natural communities and species.
4. Wildlife corridors.
5. Erosion control.
6. Stormwater control.
7. Floodwater resiliency.
8. Protecting channel-forming processes and channel stability.

Despite the numerous functions and values of riparian areas, an estimated 70% to 90% of natural riparian vegetation, vital to maintaining the integrity of riparian ecosystems and biodiversity, has already been lost or is degraded due to human activities nationwide. In Vermont, many of our rivers, streams, lakes, and wetlands no longer have functioning riparian areas due to more than 200 years of intensive human use of the land. Planning for and implementing strategies that will conserve or provide long-term stewardship for these vital habitats will slow this trend toward environmental degradation and restore the rich biodiversity associated with these areas. Therefore, the Town will support the preservation and conservation of riparian areas by continuing to enforce its Water Resource Overlay District, which maintains a vegetation buffer along waterways. For more information refer to Section 10 of the Town Plan and Town Plan Map 5. Source: VT Dept. of Fish & Wildlife, 2014

Flood Hazard Areas

Floodplains are those areas adjacent to rivers that are likely to experience flooding during heavy rainfall. A Flood Hazard Area (a.k.a. 100-year floodplain) has a one percent probability of flooding in any given year. Floodplains are a natural part of most water systems which shall not be developed due to the inherent risk to life and property. Floodplains are mapped by the Federal Emergency Management Agency (FEMA) which administers the National Flood Insurance Program (NFIP). On January 1, 2010, Westford was accepted into the Regular National Flood Insurance Program. For more information refer to Section 10 of the Town Plan and Town Plan Map 5.

River Corridor & River Corridor Protection Areas

River corridor and river corridor protection areas are subject to fluvial erosion hazards from gradual stream bank erosion to catastrophic channel enlargement. Bank failure and change in course, due to naturally occurring stream channel adjustments, has been identified and mapped in accordance with accepted state fluvial geomorphic assessment and mapping protocols.

River corridor and river corridor protection areas include the stream and the land adjacent to the stream. It identifies the area where stream processes can occur to enable the river to re-establish and maintain stable conditions over time. The area boundaries also attempt to capture the lands most vulnerable to fluvial erosion in the near term, as well as the area needed by a river to maintain equilibrium. For more information refer to Section 10 of the Town Plan and Town Plan Map 5.

Groundwater

Adequate and pure groundwater supplies are essential to most communities in Vermont. This is particularly true in Westford where virtually all water is taken from groundwater sources. The areas where water most easily percolates through the soils are called recharge areas, because they help to recharge the groundwater supply. These areas are characterized by exposed bedrock and soils with large particles (loamy soils). Recharge areas are susceptible to groundwater contamination and uses in these areas shall be carefully considered. For instance, underground storage tanks and landfills shall be prohibited from these areas. In Westford, some gravel recharge areas are located generally in the north-central area, between the Huntley and Cambridge Roads, and along the lower section of the Browns River. With that said, recharge areas for individual wells can only be determined on a case-by-case basis.

Vermont has defined community water systems (PCWS) as those that serve at least 15 service connections used by year-round residents or regularly serve at least 25-year-round residents. Incompatible uses shall be prohibited within the boundaries of community water protection areas.

Care must be taken to ensure that growth and development does not cause groundwater contamination of both individual and private wells and public water supplies which could endanger the health and safety of present and future Westford residents. The proper siting of development, with particular regard to the quality and location of waste disposal systems, is required to ensure that Westford's groundwater remains safe and protected.

8.5 Natural Resources & Features Goals & Objectives

1. Significant Natural Resources - Preserve, conserve, inventory, and provide stewardship of parcels which contain, or are part of, significant natural resources as identified herein.

2. Agricultural Soils - Development affecting agricultural soils should proceed according to the Agricultural Soils Mitigation Policies defined on Page 81. While the development of solar panels on agricultural soils may sometimes be appropriate, the town generally favors the use of marginal agricultural land for solar fields, preserving prime agricultural soils.

3. ***Extraction of Earth Resources*** - Continue to prohibit the extraction of earth resources for commercial purposes given current identified locations are high quality areas containing significant natural resources such as riparian buffers, deer wintering habitat, significant natural communities, etc.). If additional earth resources are located, the Town will reevaluate this prohibition.

4. Steep Slopes - Development and/or disturbance of steep slopes, 25% or greater, shall be restricted.

5. Ledge Outcroppings - Development and/or disturbance of ledge outcropping shall be restricted.

6. Forest Blocks - Preserve, conserve, inventory, and provide stewardship for existing forest blocks within Town.

7. Wildlife Corridors - Ensure that animals and plants are able to move freely between conserved lands, undeveloped private lands, contiguous forest habitat, and other important habitats, land features and natural communities in order to meet all their necessary survival requirements.

8. Working Lands - Ensure the viability of working lands.

9. Significant Natural Communities - Preserve, conserve, inventory, and provide stewardship of significant natural communities found within the town or area of interest.

10. Water Resources - Preserve, conserve, and provide stewardship of existing high-quality aquatic features and riparian habitats throughout the Town. With the exception of structures that cannot be located elsewhere (such as bridges or culverts), new permanent development shall not be permitted in the Water Resources Overlay District.

11. Uncommon, Rare, Threatened & Endangered Species - Preserve, conserve, inventory, and provide stewardship of habitats and natural communities that support uncommon, rare, threatened, and endangered species.

12. Deer Wintering Habitat - Preserve, conserve, and inventory deer wintering habitat to maintain the functional integrity of these areas within the town. Before development affecting deer wintering areas can be completed, a qualified professional must inventory the site and determine appropriate conservation design approaches to ensure that functional integrity of the habitat is not decreased.

13. **Mast Stands** - Preserve, conserve, and inventory mast stands to maintain the functional integrity of these areas in the town.

14. **Grasslands & Bird Habitat** - Where appropriate, encourage management of existing grasslands, including artificial habitats, larger than five acres in a manner compatible with successful grassland bird nesting. Identify and maintain or increase populations of rare grassland birds in the town.

15. **View Sheds & Ridgeline** - Inventory and preserve view sheds and ridgelines while allowing for responsible development that minimizes impacts on viewsheds. Development should be designed and located to maintain views (from the road) of Mount Mansfield.

16. **Green Development** - Incursion of development into natural resources and natural features should take place under environmentally responsible and sustainable design and methods. Green practices shall be encouraged throughout the development cycle.

17. **Flood Hazard Areas** - See Section 9.15 (Flood Hazard Area) of the Westford Town Plan.

18. **Conservation Commission** - The Westford Conservation Commission should partner with citizens to create a vibrant, sustainable environment where land uses, including agriculture, forestry, silviculture, recreation, and development coexist in harmony with natural resources.

19. **Forest Blocks** - Forest blocks should be protected in line with the goals and objectives of Chapters 8 and 9 of the Westford Town Plan.

9 FUTURE LAND USE

9.1 Policy

It is a policy of the Town of Westford to provide a variety of land uses in Westford, including residential, small scale commercial, small scale industrial, home occupations, silviculture, agriculture, conservation, and municipal uses. These and other uses are allowed in those areas of Westford in which they are historically, aesthetically, environmentally, and economically appropriate.

9.2 Inventory & Discussion

The current land use and development regulations have evolved from discussions between the Planning Commission and the community as well as responses from multiple community surveys.

Land use area categories were introduced in Westford's Town Plan in the early 1970's. . The Town was divided into four categories: Rural/Agricultural, Conservation, Flood Plain and Open Space. In 1975, the Flood Plain classification was dropped. In 1980, the Plan was revised and major changes in land use areas were made. A residential area was designated for residential growth in the northwest corner of Town. A large part of the Conservation District was changed to the Forestry District, the Flood Plain area was reintroduced as the Wetland District, and the Town Center District appeared. The remainder of the Town was reclassified as the Agricultural, Forestry, and Residential District. In 1982, a second area in the north central section of the Town was designated for residential growth. In 1987, the lands surrounding the four paved roads in Town that were classified as Agricultural, Forestry, and Residential were added to a new land use area called Agricultural, Forestry, and Residential 2 District.

In 2016, the Town unified the zoning and subdivision regulations forming the Westford Land Use and Development Regulations. This involved a complete rewrite of the regulations. The new zoning regulations created a Form Based Code Overlay in the Town Center Area which governs site and building design and allows for Administrative approval of commercial development and a two district Town Center Area governing uses. The zoning regulations also provide context sensitive design standards in Rural 5 Zoning District, low impact development stormwater standards, performance standards for commercial enterprises, expanded housing diversity incentives and options, increased commercial uses, and adaptive reuse standards of historic structures. Planned Unit Development and density bonus language for subdivisions were also revised to address eco-friendly design, working lands/natural resource protections and low to moderate income housing stock deficiencies.

An examination of recent housing construction in Westford provides a picture of how the land classifications in Westford have affected patterns of residential development. The Rural 3 District has seen the most intense development in the entire town. This is a reflection of the relatively low minimum lot size in the area and the presence of soils easily suited for septic systems.

Over the years, Westford residents have made it clear to the Planning Commission that the Town is slowly losing some of its rural character. Residents have requested that the Planning Commission take the necessary planning steps to continue to allow new commercial and

residential development but that it is channeled in such a manner as to preserve Westford's rural character.

Commercial growth has been very limited in Westford. Small businesses are scattered throughout the entire town at random and are generally linked with residential uses. Westford residents have also made it clear that they desire small scale business, additional community amenities, and services in the Town Center Area.

In light of this history of town planning, the following sections describe land use areas and steps to be taken to implement this plan. These have evolved from discussion by the Planning Commission and the responses from the 2019 community survey.

9.3 General Land Use Goals & Objectives

1. **Cultural & Historical Resources** - Westford shall encourage and implement techniques that enhance the rural, historical, and cultural resources which give the Town its identity.

2. **Town Center Area** - Revitalize the Town Center Area to serve as the civic and commercial core of the Town.

3. **Rural Character** - The primary goal of the 2020 Town Plan is the enhancement of the rural character of Westford.

4. **Working Landscapes** – Westford shall encourage and implement techniques that conserve the working landscape (e.g. agriculture and silviculture).

5. **Natural Resources** – Westford shall encourage and implement techniques to conserve and protect natural resources.

9.4 Town Center Areas & Form Based Code Overlay

Westford's Town Center Area occupies the same general geographic location as the historic Village of Westford, and as such, it is the primary location of cultural activities and most public and municipal buildings. This area is intended to have the highest density and the widest variety of uses in Town. In 1995, the Town Center Area was increased based on the desire to revitalize the Town Center Area. After thorough investigation, it is clear that development within this historic center cannot be accomplished without community wastewater. The Town has been investigating the development of community wastewater systems within the Town Center Area and has made progress on implementing the plan in a manner that is affordable for the town and users. This includes the purchase of a community wastewater site, in 2018. The purchase was done in conjunction with the preservation of a historic stonewall, preservation of a historic farm and the creation of the Maple Shade Town Forest.

In 2010, the Town received Village Center Designation from the State of Vermont Department of Housing and Community Development. The Designated Village Center encompassed the area immediately surrounding the Town Common. The benefits of this designation include priority ranking with regard to grant applications geared towards implementing the goals of

designated villages. This designation benefits owners of non-residential structures located in the designated village by offering tax credits for upgrades to historic buildings.

In 2016, the Town redistricted the Town Center Area into two districts, Common and Village. These districts address permitted and conditional uses. During this change uses were expanded, and more uses permitted. Furthermore, the Town created a Form Based Code Overlay in the Town Center Area governing site and building design and gave the Administrator Officer authority to approve commercial development plans within the overlay district; thereby significantly expediting the review process for developers.

In 2019, the Town received Neighborhood Development Area Designation from the State of Vermont Department of Housing and Community Development. The Neighborhood Development Area encompasses the T5 Form Based Code Overlay District located along Route 128 adjacent to the Town Common. It is the intention of the Town to expand this designation to the T4 Form Based Code Overlay District as well. The benefits of this designation include priority ranking with regard to grant applications, reducing state permit fees and/or exempting development proposals from Act 250 jurisdiction, limiting appeals of conditional use permits, and land gain tax exemptions.

The goals of this designation are as follows:

1. Support historic downtowns and villages by providing funding, training, and resources to communities designated under this chapter, to revitalize such communities, to increase and diversify economic development activities, to improve the efficient use of public investments, including water and sewer systems, and to safeguard working landscapes;
2. Improve the ability of Vermont's historic downtowns and villages to attract residents and businesses by enhancing their livability and unique sense of place; expanding access to employment, housing, education and schools, services, public facilities, and other basic needs; and expanding businesses' access to markets;
3. Coordinate policies and leverage funding to support historic downtowns and villages by removing barriers to collaboration among local downtown organizations, municipal departments, local businesses, and local nonprofit organizations and increasing accountability and effectiveness at all levels of government to revitalize communities and plan for future growth;
4. Promote healthy, safe, and walkable downtown and village neighborhoods for people of all ages and incomes by increasing investments in those locations; providing energy efficient housing that is closer to jobs, services, health care, stores, entertainment, and schools; and reducing the combined cost of housing and transportation;
5. Encourage investment in mixed use development and provide for diverse housing options within walking distance of historic downtowns and villages that reinforce Vermont's traditional settlement patterns and meet the needs of community members of all social and economic groups.
6. Develop safe, reliable, and economical transportation options in historic downtowns and villages to decrease household transportation costs, promote energy independence, improve air quality, reduce greenhouse gas emissions, and promote public health; and

7. Reflect Vermont's traditional settlement patterns, and to minimize or avoid strip development or other unplanned development throughout the countryside on quality farmland or important natural and cultural landscapes.

The Town has taken the following steps to revitalize the Town Center Area:
1. Planting street trees
2. Upgrading the Common,
3. Installing a port-a-potty on the Common,
4. Installing a crosswalk from the Town Office to the Common,
5. Upgrading pedestrian signage along Route 128,
6. Constructing a park and ride facility on the Common,
7. Constructing safe and accessible parking areas serving community facilities,
8. Acquiring pedestrian path easements,
9. Providing a free public Wi-Fi zone in the Town Common Area,
10. Conducting community wastewater studies and acquiring a community wastewater site in the Town Center Area,
11. Acquiring Village Center and Neighborhood Development Area designation, and
12. Adoption of a form based code overlay to tie new development to the historic character of the Town Center Area while encouraging and incentivizing mixed uses, energy efficiency, and affordable housing options.

Furthermore, the Town is currently and will continue to pursue:
1. Installing additional traffic calming and beautification techniques,
2. Increasing civil and recreational opportunities for all ages,
3. Constructing sidewalks and curbing to connect community facilities,
4. Making all community facilities ADA accessible,
5. Constructing a path from the Common to School,
6. Identifying public transportation alternatives, and
7. Providing wastewater solutions.

These strategies and more will be carried out through grant awards, fundraising, donations, and volunteerism in addition to the Town budget.

9.5 Town Center Areas & Form Based Code Overlay Goals & Objectives

1. **Community Life & the Common** - Utilize the Town Common Area and Common as the focal point of community life and activity in Westford.

2. **Historical, Cultural & Architectural Character** - Preserve and promote the historical, cultural, and architectural character of the Town Center Area.

3. **Pedestrian Safety & Traffic Calming** – Implement pedestrian safety and traffic calming techniques in the Town Center Area.

4. **Community Infrastructure** - Expand Westford's role in providing infrastructure so that higher density development can occur in the Town Center Area while maintaining the architectural character, promoting adaptive reuse of existing historic structures and enabling new structures that reflect the character of the area.

5. **Revitalize Town Center Area** - Revitalize the Town Center Area creating a diversity of uses that provides essential community resources, is pedestrian friendly, offers affordable housing, commercial development, and functions as the center of community life.

9.6 Rural 3 Area

The primary purpose of the Rural 3 area (R3), located northeast of the Town Center Area surrounding Plains Road, is to provide for residential development. The density in this area is 3 acres per principal structure. This district is extremely close to being "built-out", or unable to sustain further subdivision. Once this area is built out, there are no other areas in Town that can support this kind of development density.

9.7 Rural 5 Area

The Rural 5 area (R5) is comprised of lands adjacent to paved roadways (e.g. VT Route 128, VT Route 15, and Westford-Milton Road). These roadways are the primary travel corridors for many residents. The land is characterized by open spaces with a good potential for agricultural uses. This area, although having development and use limitations due to soils not suitable for wastewater capacity and proximity to waterways, is well suited for small scale nonresidential development. All development should preserve Westford's historic rural character by way of regulating access points, site design, building design: while limiting impacts to viewsheds, significant natural resources and adjoining residential property owners. In 2016, the Town adopted context sensitive design standards in hopes of achieving these goals. Density in the R5 district is 1 principal structure per 5 acres with exceptions.

9.8 Rural 5 Area Goals & Objectives

1. **Commercial Access & Development** -_Focus small scale development along paved roads when it is in keeping with the historical rural character of Westford (open space, working lands, and viewsheds) in order to prevent strip development.

2. **Residential Access & Development** – Preserve open space, working land, and viewsheds by requiring that new housing developments be sited so as to protect these natural resources and by minimizing access and roadways serving said developments, in so far as possible and safe.

9.9 Rural 10 Area

The Rural 10 area (R10) is the largest portion of land in the Town (approx. 80%). The area is characterized by land with good potential for agriculture and forestry uses. Furthermore, it houses the majority of the Town's significant natural resources. This area has limitations to its use and development due to steep and hilly terrain, lack of access, and poor soils for wastewater. Density in the R10 district is 1 principal structure per 10 acres with exceptions.

9.10 Rural 10 Area Goals & Objectives

1. **Natural Resource & Working Land Protection** - Protect significant natural resources and working lands while allowing property owners to develop their property reasonably.

9.11 Forestry Area

The Forestry (F) is proposed as a future land use district. The land under consideration is comprised of steep slopes, mountain tops and ridges, woodlands, water resources, floodwater attenuation, and significant natural resources. Due to complex development limitations, such as lack of access and/or safe access, poor soils for wastewater, erosion, stormwater concerns, and steep slopes, this area is in a largely undisturbed and natural condition. The proposed district is characterized as containing land with potential for forestry, agricultural, recreational, and educational opportunities, and significant natural resources. The purpose of this area is to conserve working lands, significant natural resources, wildlife habitats, corridors and biodiversity, preserve undeveloped forest blocks of local and regional significance, and limit development where the land is not conducive to development and/or would strain the Town's ability to provide services. Refer to Town Plan Map 3 and 10.

9.12 Forestry Area Goals & Objectives

1. **Working Lands** – Ensure undeveloped, productive forest blocks are conserved for current and future generations.

2. **Significant Natural Resource** - Preserve and protect significant natural resources and ensure they are conserved to the fullest extent.

3. **Biodiversity** – Preserve and protect flora and fauna to promote healthy and sustainable natural functions locally and regionally with diverse forest blocks.

4. **Forest Blocks** – Preserve and protect large contiguous forest blocks to ensure healthy populations of flora and fauna.

5. **Corridors** - Maintain undeveloped natural corridors along public trails.

6. **View Sheds** – Preserve scenic view sheds, in so far as possible.

7. **Floodwater Attenuation** – Conserve upland areas to increase and/or maintain current levels of floodwater attenuation.

9.13 Water Resource Overlay Area

Wetlands, rivers, streams, ponds, and source water protection areas are susceptible to the effects of construction, development, and other incompatible uses.

The public's health, safety, and welfare is served by the protection of these necessary resources. Therefore, degradation and contamination of Westford's water resources is to be avoided. Due to the fact that these resources are not located in one geographic area of Westford, the overlay concept has been adopted to provide the protection needed.

Most of the Town is located within the Lamoille Watershed with a small part of the southwest corner located in the Northern Lake Champlain/Winooski Watershed. The Lamoille Tactical

Basin Plan, adopted in 2016, identifies projects in Westford specifically and in the Browns River Watershed in particular. The Town strives to implement the projects set forth in both plans.

The Water Resources Overlay Area applies to all water resources depicted on Town Plan Map 5 and supersedes underlying zoning provisions, if conflict between district standards exists. Flexibility in siting development will be required by the Development Review Board and landowners to implement the Water Resources Overlay Area. The boundaries of the Water Resources Overlay Area do not appear on the Current Zoning map (Town Plan Map 8) due to the complexity of the district. However, the district is depicted on Town Plan Map 5.

9.14 Water Resources Overlay Area Goals & Objectives

1. General -Ensure that the quality of Westford's important water-related resources: including wetlands, rivers, streams, ponds, and source water protection areas are protected: and protect the public health by minimizing the adverse impacts of development, pollution, and disturbance on Westford's water related resources and adjacent lands.

2. Water Quality – Reduce point and non-point source pollution to maintain water quality for human use, human consumption, and species health and survival.

3. Biodiversity & Habitat – Ensure riparian buffers and waterways are maintained in a manner that provide basic and necessary survival requirements to species: such as: food, shelter, travel ways and appropriate water temperatures/oxygen loads: for aquatic, avian, and terrestrial species.

4. Erosion & Sedimentation – Ensure riparian buffers provide thick, natural vegetation along banks to bind and trap soil particles together, reducing sedimentation and stream bank erosion and limit river meandering.

5. Stream Equilibrium - Preserve and promote natural systems/function to allow for stream equilibrium.

6. Flood Resiliency & Stormwater Attenuation – Ensure riparian buffers provide thick, natural vegetation to absorb and slow run off, maximize floodwater attenuation in upland areas, and reduce flood severity.

9.15 Flood Hazard Overlay Area

State and Federally mapped Flood Hazard Overlay (FHO) areas are unsuitable for development due to the certainty of flooding. Therefore, to protect public health, safety, and welfare; development and increase flood resiliency in this area shall be severely limited.

The Flood Hazard Overlay encompasses the FEMA delineated floodway and 100-year floodplain. More specifically, the FHO encompasses the floodplains associated with the Browns River, Morgan Brook, Beaver Brook, and a handful of large, class 2 wetlands. These areas are not suitable for development and/or changes in grade. Land development shall not occur in the FHO, unless necessary for essential services, water dependent uses (such as dry hydrants), and/or to access landlocked parcels. Therefore, the Town's regulations exceed the federal minimum

standards for these areas. Currently, there is one abandoned accessory structure located in the FHO in Westford.

Developed in 2017, in conjunction with the Chittenden County Regional Planning Commission, the purpose of the All Hazard Mitigation Plan is to assist the Town in identifying all hazards, including flooding, facing the community and to develop mitigation strategies to reduce the impacts of the identified hazards. The Town's All Hazards Mitigation Plan identified severe winter storms, flooding and fluvial erosion as the highest risk rating for natural hazards. The Plan also identified a significant number of culverts, bridges, and roads, as well as, critical facilities located within the Flood Hazard Area. The 2017, All Hazard Mitigation Plan identifies several actions the Town will look to implement through early 2022, to mitigate the impacts of various hazards including flooding. Additionally, the Town has a Local Emergency Operations Plan, which is designed to provide a directive for emergency planning and response. In 2019, the Town decided to update the Road and Bridge Standards, given the frequency of significant and devastating flooding seen in Town. Westford also participates in the National Flood Insurance Program. The National Flood Insurance Program (NFIP) is a voluntary program that provides federally subsidized flood insurance to participating communities. Residents of participating communities are then able to purchase NFIP flood insurance to protect their buildings and possessions. Flood insurance rates are based on Flood Insurance Rate Maps (FIRMs), which delineate areas of the floodplain likely to be inundated during a flood. The Town actively works with residents owning property and/or infrastructure near the FHO and actively educate residents on the FHO and emergency preparedness, resources, and response.

The Flood Hazard Overlay area will supersede underlying zoning provisions, if conflict between district standards exists. Flexibility in siting development will be required by the Administrative Officer, Development Review Board, and landowners to implement the Flood Hazard Overlay area. The boundaries of the Flood Hazard Overlay Area do not appear on the Current Zoning map (Town Plan Map 8) due to the complexity of the district. However, the district is depicted on Town Plan Map 5.

For additional information on this topic go to http://floodready.vermont.gov/

9.16 Flood Hazard Overlay Area Goals & Objectives

1. **Protect Human Health, Safety & Welfare** - To prevent the loss of life and property, the disruption of commerce, the impairment of the tax base, and the extraordinary public expenditures and demands on public services that result from flooding and other flood related hazards.

2. **Minimize Flood Damage** - To ensure that the design and construction of development minimizes the potential for flood loss or damage to life and property.

3. **Preservation of Natural Systems** - To encourage Flood Hazard areas to be kept in their natural state.

4. **Effective & Efficient Management** - Manage all Flood Hazard areas to ensure public and private property and human life are protected to the fullest extent from the effects and dangers of flooding.

5. **Effective & Efficient Financial Disaster Assistance** – To make the State, municipality, and residents eligible for federal flood insurance and other federal disaster recovery and hazard mitigation funds.

9.17 River Corridor Protection/River Corridor Area

The Vermont ANR River Management Program has developed an additional program to supplement the NFIP called the River Corridor Protection/River Corridor Program. This program maps a river corridor or river corridor protection area; specially tailored to protect against the predominant form of flood damage in Vermont: fluvial erosion; based on studies of each stream's geomorphic or physical, condition and inherent sensitivity to erosion.

A River Corridor Protection Area is the area within a delineated river corridor, subject to fluvial erosion, that may occur as a river establishes and maintains the dimensions, pattern, and profile associated with its dynamic equilibrium condition; and that would represent a hazard to life, property, and infrastructure placed within the area. The river corridor protection area is the meander belt portion of the river corridor without an additional allowance for a riparian buffer to serve the function of bank stability and water velocities in the near-bank region.

A River Corridor is the land area adjacent to a river that is required to accommodate the dimensions, slopes, planform, and buffer of the natural stable channel. It is necessary for the natural maintenance or natural restoration of a dynamic equilibrium condition, as that term is defined in 10 V.S.A. 1422; and for minimization of fluvial erosion hazards, as delineated by the Agency of Natural Resources in accordance with Agency Flood Hazard Area and River Corridor Protection Procedures.

A River Corridor Overlay is proposed as a future, or incorporated overlay district. River corridors and river corridor protection areas; refer to major streambed and stream bank erosion areas associated with the often-catastrophic physical adjustment of stream channel dimensions (width and depth) and stream channel location, that can occur during flooding. Fluvial erosion becomes a hazard when the stream channel is undergoing adjustment due to its instability from gradual stream bank erosion to catastrophic channel enlargement, bank failure, and change in course; due to naturally occurring stream channel adjustment. Often times, this process threatens life, public infrastructure, houses, businesses, and other private investments. While some flood losses are caused by inundation (i.e. waters rise, fill, and damage low-lying structures), most flood losses in Vermont are caused by fluvial erosion.

Every river has a probable form; reflecting its complex interaction of many factors, including inputs from its watershed (water, sediment, ice, woody debris), as well as, the physiographic setting (geology, soils, vegetation, valley type). There is a balance between watershed inputs (water and sediment), channel characteristics (slope and boundary conditions), and the physical response of a channel either by aggradation (sediment deposition), or degradation (scouring of sediment).

When all the elements are in balance, a river is considered to be in dynamic equilibrium. A river in equilibrium can carry its load of water, sediment, and debris, even during high flows, without dramatic changes in the width, depth, or length (slope). A dramatic change in any of these

elements will tilt the balance and lead to changes or adjustment; as a river attempts to move back toward an equilibrium condition. This adjustment is often expressed as fluvial erosion, or major changes in channel dimension and location, as a river attempts to regain equilibrium.

One common mode of channel adjustment seen throughout Vermont is the response of a river to straightening. When a river is straightened, the slope of the channel is increased. As a result, the river has more power and a greater ability to carry sediment and begins to incise; eroding the stream bed. The incision leads to a situation where the river becomes disconnected from its floodplain. Without floodplain access, which serves the essential purposes of slowing floodwaters and storing sediment, stream banks are subjected to the full power of flood flows; leading to extensive fluvial erosion. If left alone, the river will eventually erode its banks enough that it can lengthen its channel, regain a more stable slope, and develop a new floodplain at a lower elevation.

The river corridor has been identified and mapped for the Town of Westford in accordance with accepted state fluvial geomorphic assessment and mapping protocols. The vast majority of the river corridor is already encompassed or exceeds the WRO and FHO, which are highly restrictive and prohibit most if not all types of development. The river corridor is depicted on Town Plan Map 5. Town Plan Map 5, not only identifies the river corridor area in Westford, but also provides a valuable insight into the location and nature of fluvial erosion hazards and can be used to support many effective mitigation options.

9.18 River Corridor/River Corridor Protection Area Goals & Objectives

1. **Protect Human Health, Safety & Welfare** - To prevent the loss of life and property, the disruption of commerce, the impairment of the tax base, the extraordinary public expenditures, and demands on public services; that result from flooding and other flood related hazards.

2. **Minimize Flood/Erosion Damage** - To ensure that the design and construction of development minimizes the potential for flood and other flood related loss or damage to life and property.

3. **Preservation of Natural Systems** - To encourage erosion hazard areas to be kept in their natural state.

4. **Effective & Efficient Management** - Manage erosion hazard areas to ensure public and private property and human life are protected from the effects and dangers of flooding and other flood related hazards.

10 IMPLEMENTATION PLAN

The tasks listed in the Implementation Plan directly correlate to the goals and objectives identified in each chapter of the Town Plan and outline the expected course of action to be taken to implement those goals and objectives. The following spreadsheet can be reorganize/sorted by chapter, project category, timetable, responsible party, and/or project type. Individuals may reorganize/sort the Implementation Plan to fit their needs by visiting https://westfordvt.us/wp-content/uploads/2020/12/2021-Town-Plan-Implementation-Plan.pdf . The Implementation Plan will be reviewed annually with all Town Officials, Boards, Commissions and Committees; in order to develop annual work plans and track progress.

WESTFORD TOWN COMMON
CONCEPTUAL MASTER PLAN

gateway sign

sidewalk - phase 1
extend sidewalks along
Route 128 from the library
to south of the Brick Church

widen shoulder
to bridge

clear scrubby vegetation
from around momument

tighten curb radius
not more than 20' R

playground

raised curb to
calm traffic

continue tree planting along
the edges of the Common

path between upper
and lower Common

expand parking
as needed

expand parking
as needed

on-street parking

clear some vegetation to open up
views of the White Church from the
Common and create open space
for picnicing

potential building sites

use walkway to define
the boundaries of the
Common

path/sidewalk - phase 2
a path or sidewalk would be extended
along the Common Road as pedestrian
activity increases

if Common Road is paved, a concrete
sidewalk would be considered otherwise
consider a crushed stone path

future crosswalk at crest of hill
would be installed only if there is
significant increase in pedestrians
crossing and with warning signs or
a hawk signal

gateway sign

recreation path / riverwalk
develop a recreational path linking
the Common and the school along
the river

Funded by a 2013 Municipal Planning Grant from the Vermont Department of Housing & Community Development

From:	Lomonaco, Rachel
To:	Amy Macrellis
Cc:	Juli Beth Hinds (birchlineplanningllc@gmail.com); Brad Washburn
Subject:	RE: Westford Community Wastewater Disposal System - Act 250 jurisdictional opinion?
Date:	Monday, February 8, 2021 8:23:38 AM

Hi Amy,

The jurisdictional trigger for a municipal project is a disturbance area of 10 acres or more per 10 V.S.A. Section 6001(3)(A)(v). Given that the disturbance area for this project is currently below 10 acres, no permit is required at this time. However, if the project design changes we suggest that you reach out to our office for another opinion.

If you have any questions or want a more formal opinion from our office, please let me know.

Rachel Lomonaco, *District 4 Coordinator*
802-879-5658 | Rachel.Lomonaco@vermont.gov

VERMONT

Natural Resources Board, District 4
111 West Street
Essex Junction, VT 05452
http://nrb.vermont.gov

From: Amy Macrellis <amacrellis@stone-env.com>
Sent: Wednesday, February 3, 2021 8:23 AM
To: Brad Washburn <bwashburn@gmeinc.biz>; Lomonaco, Rachel <Rachel.Lomonaco@vermont.gov>
Cc: Juli Beth Hinds (birchlineplanningllc@gmail.com) <birchlineplanningllc@gmail.com>
Subject: RE: Westford Community Wastewater Disposal System - Act 250 jurisdictional opinion?

Thank you, Rachel and Brad!

I would add only that as design moves forward, we will continue to work with the Town and with multiple committees to make sure that disturbance is minimized throughout the project.

Best regards,
Amy

From: Brad Washburn <bwashburn@gmeinc.biz>
Sent: Wednesday, February 3, 2021 7:47 AM
To: Lomonaco, Rachel <Rachel.Lomonaco@vermont.gov>; Amy Macrellis <amacrellis@stone-env.com>
Cc: Juli Beth Hinds (birchlineplanningllc@gmail.com) <birchlineplanningllc@gmail.com>
Subject: RE: Westford Community Wastewater Disposal System - Act 250 jurisdictional opinion?

Good Morning Rachel –

The (9) acres +/- includes allowances for staging areas and temporary roads. One small building is proposed for the project which is 500 sq.ft. or less.

Brad

From: Lomonaco, Rachel <Rachel.Lomonaco@vermont.gov>
Sent: Tuesday, February 2, 2021 3:11 PM
To: Amy Macrellis <amacrellis@stone-env.com>
Cc: Brad Washburn <bwashburn@gmeinc.biz>; Juli Beth Hinds (birchlineplanningllc@gmail.com) <birchlineplanningllc@gmail.com>
Subject: RE: Westford Community Wastewater Disposal System - Act 250 jurisdictional opinion?

Hi Amy,

Thanks for that information. I just want to confirm that the disturbance area you included below (+/- 9 acres) includes all of the disturbance for the project. I'm just wondering if there are buildings or access roads that are required to serve the system, construction staging areas, etc.

Thanks again,

Rachel Lomonaco, *District 4 Coordinator*
802-879-5658 | Rachel.Lomonaco@vermont.gov

VERMONT

Natural Resources Board, District 4
111 West Street
Essex Junction, VT 05452
http://nrb.vermont.gov

From: Amy Macrellis <amacrellis@stone-env.com>
Sent: Thursday, January 28, 2021 3:03 PM
To: Lomonaco, Rachel <Rachel.Lomonaco@vermont.gov>
Cc: Brad Washburn (bwashburn@gmeinc.biz) <bwashburn@gmeinc.biz>; Juli Beth Hinds (birchlineplanningllc@gmail.com) <birchlineplanningllc@gmail.com>; Monaghan, Stephanie <Stephanie.Monaghan@vermont.gov>
Subject: RE: Westford Community Wastewater Disposal System - Act 250 jurisdictional opinion?

Hi Rachel, thanks for your reply!

I've attached a plan sheet from our draft Preliminary Engineering Report and associated work-in-progress environmental documentation that shows Alternative 4. Of the four alternatives developed

during preliminary engineering, this one represents the maximum possible project disturbance footprint. There is not much difference between the disturbance expected for each of the alternatives, though. The service area is the same for all alternatives, they all have similar collection system geometry, and all use the exact same shared leachfield site, which the Town of Westford already controls.

Our preliminary plans indicate that the disturbance area for the project will be +/- 9 acres. We estimate that the disturbance for the collection system including septic tanks at individual connections around the Town Common and conveyance up Brookside Road to the disposal field site will be approximately 2.2 acres, and that the maximum disturbance area for the shared leachfield is 6.5 acres.

Please let me know if you have more questions, and thanks for your time and consideration.
Amy

Amy Macrellis
Stone Environmental, Inc.
phone 802-229-1884 **cell** 802-272-8772

From: Lomonaco, Rachel <Rachel.Lomonaco@vermont.gov>
Sent: Thursday, January 28, 2021 12:18 PM
To: Amy Macrellis <amacrellis@stone-env.com>
Cc: Brad Washburn (bwashburn@gmeinc.biz) <bwashburn@gmeinc.biz>; Juli Beth Hinds (birchlineplanningllc@gmail.com) <birchlineplanningllc@gmail.com>
Subject: RE: Westford Community Wastewater Disposal System - Act 250 jurisdictional opinion?

Hi Amy,

Thanks for reaching out to both Stephanie and I by e-mail, it's definitely the quickest way to reach us while we're working from home. Stephanie and I spoke and I will be the point person for your proposed project.

As a first step, I'm wondering if you can tell me the size of the disturbance area for this project (including all the lands within the construction area for the wastewater system, new collection system, access roads, other supporting structures, etc). I know the project plans are preliminary, but we are looking for a conservative estimate based on the preliminary plans. If you have questions about what areas to include, please let me know.

Thank you,

Rachel Lomonaco, *District 4 Coordinator*
802-879-5658 | Rachel.Lomonaco@vermont.gov

VERMONT

Natural Resources Board, District 4
111 West Street
Essex Junction, VT 05452
http://nrb.vermont.gov

From: Amy Macrellis <amacrellis@stone-env.com>
Sent: Thursday, January 28, 2021 10:46 AM
To: Monaghan, Stephanie <Stephanie.Monaghan@vermont.gov>
Cc: Lomonaco, Rachel <Rachel.Lomonaco@vermont.gov>; Brad Washburn (bwashburn@gmeinc.biz) <bwashburn@gmeinc.biz>; Juli Beth Hinds (birchlineplanningllc@gmail.com) <birchlineplanningllc@gmail.com>
Subject: FW: Westford Community Wastewater Disposal System - Act 250 jurisdictional opinion?

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.
Good morning Stephanie,

Following on some conversations with Juli Beth yesterday and this morning, after I sent this over to Rachel, I am looping you in as well.
Below is the correspondence I started with Rachel yesterday. My basic question / request has not changed.
In addition, it would be lovely to discuss with you, if it turns out that an Act 250 application is necessary, how we should describe and assess the project. It is a single "project" to construct a new soil-based community wastewater treatment and disposal system, and as such it will encompass portions of the majority of "parcels" around Westford's Town Common.

I look forward to our conversations!
Amy
Amy Macrellis
Stone Environmental, Inc.
phone 802-229-1884 **cell** 802-272-8772

From: Amy Macrellis
Sent: Wednesday, January 27, 2021 10:48 AM
To: rachel.lomonaco@vermont.gov
Cc: Brad Washburn (bwashburn@gmeinc.biz) <bwashburn@gmeinc.biz>
Subject: Westford Community Wastewater Disposal System - Act 250 jurisdictional opinion?

Good morning Rachel,

Following up on my voicemail message from earlier this morning:

If you are interested in digging into our community wastewater project as it currently stands, and all the work the Town is engaged in towards the revitalization of the Town Center area, before calling me back, the Town maintains a website here: https://westfordvt.us/town-center-revitalization-projects/

Green Mountain Engineering and Stone are wrapping up the community wastewater system's Preliminary Engineering Report and associated environmental documentation at present, so we are working to confirm permits and additional assessments that may be required as we move into the

final design phase.

Any input on Act 250 jurisdiction, application submittal requirements, etc. you can provide will be greatly appreciated! And if Stephanie, or someone else in your office, is better to contact with my questions, please feel free to forward.

Many thanks!
Amy

Amy Macrellis
Senior Water Quality Specialist
535 Stone Cutters Way Montpelier, VT 05602 USA
phone 802-229-1884

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