

Planning Commission Reporting Form for Municipal Plan Amendments

This report is in accordance with 24 V.S.A. §4384(c) which states:

“When considering an amendment to a plan, the planning commission shall prepare a written report on the proposal. The report shall address the extent to which the plan, as amended, is consistent with the goals established in section 4302 of this title.

A comprehensive update of the Waterford Town Plan was undertaken in 2015-2016, updating all sections, reassessing goals, and adding new sections on Flood Resilience and Economic Development. Both the new Economic Development section and Flood Resilience section set forth goals and action steps that are consistent with the goals of the Regional Plan and the State. The Economic Development section focuses on agriculture and home-based businesses as particular aspects of the local economy to be encouraged. The Flood Resilience section outlines goals and action steps intended to mitigate potential impacts due to flood hazards and maintain good water quality by reducing stormwater runoff from new development and protecting the River Corridor from incompatible development and uses.

The goals and action steps pertaining to each section of the Plan which are summarized in the implementation table at the end of the document are consistent with the State planning goals articulated in State statute.

If the proposal would alter the designation of any land area, the report should cover the following points:

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

The amended Town Plan proposes two specific zoning districts changes, both of which are identified on the zoning map accompanying the Plan. An area on Route 5 in the western corner of town that is currently zoned Industrial Commercial is proposed to be changed to Rural Residential. The area is currently in residential use, which is found to be the most appropriate use for the area in the future. This change would not impact surrounding properties, and would lessen the potential for future negative traffic impacts that could result if a commercial establishment were developed in this location.

The second area is located on Route 18 near the intersection of Duck Pond Road, and is an area that has been in continuous industrial and commercial use for about 50 years. A precast concrete plant operates in this location, as well as a commercial bakery and an excavating business. The area is currently zoned Rural Residential, and is proposed to be rezoned to Industrial Commercial, to more accurately reflect the site's appropriate current and future use. It is noted that the expansion of the existing uses or the addition of

commercial uses in this location would be subject to the conditional use review and performance standards currently contained in Waterford's zoning bylaw. It is further noted the Planning Commission may create additional performance standards or conditions for any development within the Source Protection Area of Stiles Pond, in which these existing commercial and industrial operations are located. It is not expected that the change in zoning category will have a negative impact on surrounding area, and will not increase traffic since the property is currently being used for industrial and commercial uses. If new or intensified uses of the site is proposed, a traffic study may be warranted as part of the site plan review.

While neither of the proposed zoning category changes are expected to change the way the areas are currently used, it will clarify on the Town's zoning map what is expected for future land use in these locations.

The Plan also proposes an overall reduction in the permitted residential density in Town. While the existing built residential density is approximately 1 dwelling per 40 acres, the current zoning regulations permit 1 house per 2 acres Town-wide. The Plan notes that lower permitted residential densities would be appropriate in areas containing productive agricultural land and forest blocks important for both wildlife habitat and forestry uses, although specific areas have not been identified for rezoning. A future proposal to rezone particular areas in town for a lower density will be based on the locations of these important land resources.

The Flood Resilience element of the Plan contemplates the amendment of the town's flood hazard regulations to include restriction of development activities on lands adjacent to streams and within "River Corridors," as mapped by the Vermont Agency of Natural Resources. It is expected that restricting the development of land in flood and fluvial erosion hazard areas will have a long-term beneficial impact to the municipality, as it would mitigate against future flood-related damage and the human and financial costs associated with it. Some of the land included within the State-mapped "River Corridor" is already subject to development restrictions under Waterford's current zoning regulations, since they are within the mapped flood hazard areas of the Federal Emergency Management Agency (FEMA). The State River Corridor and the recommended setbacks to smaller streams is based on a methodology developed by the State's river scientists.

2. The long-term cost or benefit to the municipality, based consideration of the probable impact on:

(A) the municipal tax base; and

(B) the need for public facilities;

Neither of the specific proposed changes in zoning category are expected to have an impact on the municipal tax base or increase the need for public facilities. It is expected that reducing permitted residential density in appropriate areas of Town will have the positive effect of protecting valuable land resources which are of

economic and scenic importance to the Town, and preventing overdevelopment which could place burdens on the Town's limited municipal services.

3. The amount of vacant land which is:

(A) already subject to the proposed new designation; and

(B) actually available for that purpose, and the need for additional land for that purpose.

The vast majority of acreage in Waterford is currently zoned Rural Residential. The Economic Development section for the Plan identifies agriculture and forestry uses of the land as important components of the local economy, and these uses of land are permitted in all zoning districts, including the RR district.

There are currently three compact areas in town zoned industrial commercial. The proposal to remove one area from this category and add another area to this category will result in a slight increase in the area of land zoned industrial commercial. Two of the areas (one existing and one proposed for the industrial commercial zone) have existing commercial industrial uses which will have some limited room for expansion. The third area which is currently zoned industrial commercial is located at the border with St. Johnsbury near the intersection of Rt. 18 and the Interstate Highway interchange. This area is currently in agricultural use.

4. The suitability of the area in question for the proposed purpose, after consideration of:

(A) appropriate alternative locations;

(B) alternative uses for the area under consideration; and

(C) the probable impact of the proposed change on other areas similarly designated

The proposed changes in zoning classification are appropriate due to the lands' current use and location. No alternative locations for these industrial commercial uses have been found to be more appropriate. No impacts to other areas designated Rural Residential or Industrial Commercial are expected.

5. The appropriateness of the size and boundaries of the area proposed for change, with respect to the area required for the proposed use, land capability and existing development in the area.”

The size of the area proposed to be rezoned to Industrial Commercial use follows that area where existing commercial and industrial uses have been operating, and where land disturbance has historically occurred, and is therefor appropriate.



WATERFORD TOWN PLAN

Adopted _____

Waterford Planning Commission:

Bill Dimick
Howard Remick
Mike Barrett
Bob DuMaire
John Gillott
Tom Robinson
Dave Senio

Michelle Collins, Planning
Commission Secretary

Table of Contents

I. INTRODUCTION.....	5
Purpose and Scope.....	5
Community Involvement	5
Overarching Goals.....	5
II. HOUSING.....	2
Introduction	2
Existing Conditions.....	2
Housing Affordability	4
Planning Considerations	5
Goals and Action Steps	8
III. COMMUNITY FACILITIES AND SERVICES.....	9
Existing Conditions.....	9
Water and Wastewater.....	9
Solid Waste Disposal	9
Broadband Availability	10
Public Buildings	11
Public Safety.....	11
Emergency Management.....	11
Planning Considerations	12
Internet Access.....	12
Water and Wastewater.....	12
Goals and Action Steps:	12
IV. EDUCATION.....	14
Introduction	14
Existing Conditions.....	14
Planning Considerations	17
V. TRANSPORTATION	18
Introduction	18
Existing Conditions.....	18
Planning Considerations	20

State-wide requirements	21
The Municipal Roads General Permit	21
Scenic Roads.....	22
Policies	24
Goals and Action Steps	24
VI. ENERGY	26
Introduction	26
Resources.....	26
Needs, Scarcities and Problems	26
Costs.....	26
Conservation	27
Renewable Energy Resources	27
Energy Standards for New Construction.....	28
Land Use Patterns and Energy Conservation.....	28
Other Planning Considerations	28
Policy	29
Goals and Recommended Actions	31
VII. ECONOMIC DEVELOPMENT	33
Existing Conditions.....	33
Planning Considerations for Economic Growth	40
Goals and Action Steps	41
VIII. FLOOD RESILIENCE	43
Introduction	43
Existing Conditions.....	43
Planning Considerations	44
Goals and Action Steps	46
IX. LAND USE	47
Introduction	47
Existing Conditions.....	47
Existing Land Use	47
Existing Land Use Regulations.....	52
Planning Considerations for Future Land Use	53

Recommended Categories of Land Use.....	56
Goals and Action Steps	57
X. CONFORMANCE OF PLAN WITH ADJACENT TOWNS AND REGION	59
Regional Plan.....	59
Adjacent Municipalities	59
XI. PLAN IMPLEMENTATION.....	61
APPENDIX A: MAPS	68
APPENDIX B: WATERFORD COMMUNITY SURVEY	69

I. INTRODUCTION

Purpose and Scope

This Plan has been developed by the Waterford Planning Commission with funding by a 2015 Municipal Planning Grant from the Vermont Agency of Commerce and Community Development, and has been prepared in accordance with 24 V.S.A. Chapter 117, Section 4382. This Plan sets forth the objectives, policies and programs of the Town of Waterford to provide guidance to the Waterford Selectboard and to establish a basis for the town's land use regulations.

This Plan also provides guidance to the District Environmental Commission when reviewing developments under Act 250, and to the Vermont Public Service Board when reviewing proposed utility projects seeking a Certificate of Public Good.

It is recognized that planning for the future is a process which can best be done as a continuing activity; therefore, this Plan is not a final document, but instead is a policy guideline that should change as the needs and desires of the community change.

Community Involvement

To begin the process of a comprehensive update to the Town Plan, the Waterford Planning Commission developed a survey to gauge residents' opinions on desirable community features, the adequacy of existing housing, infrastructure, facilities and services in Town. Results of the survey, which had a response rate of about 22%, have been used to guide the development of the Plan, and results are incorporated in the relevant sections.

Overarching Goals

1. To remain a rural residential community in character and nature.
2. To retain and promote agriculture and forestry as the prime economic base within the town, recognizing that residents may need to commute or telecommute to other towns for other major sources of employment.
3. To promote small clean industry on a very selective basis.
4. To grow in a slow, fiscally tolerable, ecologically sound, and orderly fashion, so as to protect the public health, safety, and welfare.
5. To encourage a mixed and balanced population within the town, providing places to live for young families, as well as for those who are retired or have a second home on the community.
6. To adequately consider all residents' needs and to provide services, facilities, and amenities the town can reasonably afford.
7. To protect our natural and economic resources.
8. To preserve our historical heritage.

II. HOUSING

Introduction

As per State statute, the housing element must include a recommended program for addressing low and moderate income persons' housing needs, and should account for permitted accessory dwelling units. Among the State planning goals related to housing are:

- To plan development so as to maintain the historic settlement pattern of compact village and urban centers separated by rural countryside.
- Intensive residential development should be encouraged primarily in areas related to community centers, and strip development along highways should be discouraged.
- Public investments, including the construction or expansion of infrastructure, should reinforce the general character and planned growth patterns of the area.
- Housing should be encouraged to meet the needs of a diversity of social and income groups in each Vermont community, particularly for those citizens of low and moderate income.
- New and rehabilitated housing should be safe, sanitary, located conveniently to employment and commercial centers, and coordinated with the provision of necessary public facilities and utilities.
- Sites for multi-family and manufactured housing should be readily available in locations similar to those generally used for single-family conventional dwellings.
- Accessory apartments within or attached to single-family residences which provide affordable housing in close proximity to cost-effective care and supervision for relatives, elders, or persons who have a disability should be allowed.

Existing Conditions

As noted in the land use section of the Plan, most of the housing and related structures in Waterford are dispersed throughout the town on lots larger than 5 acres, although there are some residential developments on lots of 5 acres and smaller.

Year	# of subdivisions	Total # of lots created
2015	7	8
2014	4	8
2013	3	7
2012	3	6
2011	1	2

2010	11	26
TOTAL 2010-2015	29	57

Single-family dwellings (including mobile or manufactured homes) and accessory apartments are permitted as of right in the Rural Residential District, and these uses along with two-family dwellings are permitted as of right in the Village District. Single and multi-family homes are conditionally permitted in the Industrial Commercial District. The minimum lot size in all districts is 2 acres.

The Town zoning bylaw does not currently provide for Planned Unit Developments (PUDs). PUDs can allow for houses on smaller lots if preserved open space is included in the development and the net density does not exceed that permitted in a conventional subdivision.

Subdivisions that have occurred since 2010 are shown in Table II-1. From 2010 to 2015, there were 29 subdivisions in town, creating a total of 57 new lots. Subdivisions of less than five lots are considered a minor subdivision under the Town’s regulations. Because Waterford has both zoning and subdivision regulations, review of subdivisions under Act 250 is not triggered unless a single entity creates 10 or more housing units or lots within a five year period.

Table II-2 Waterford 2015 Grand List	
Category	Parcel Count
Residential 1 (less than 6 acres)	267
Residential 2 (6 or more acres)	236
Mobile Home w/out land	3
Mobile Home w/ land	14
Seasonal 1 (vacation home w/ less than 6 acres)	35
Seasonal 2 (vacation home w/ 6 acres or more)	31
Farm	16
Total residential properties	602
Source: Town of Waterford Listers	

According to the Town’s 2015 grand list, there were 602 residential properties in Town (see Table II-2). This count does not reflect the number lots with more than one dwelling, multi-unit houses or houses with accessory apartments, so does not necessarily reflect total housing unit count.

As shown on Table II-2, 66 properties, or about 11% percent of all residential properties in town, were classified as seasonal. As shown in Table II-3 below, this is consistent with the U.S. Census data, which shows 11% of housing units in Waterford as seasonal. In the year 2000 only 9% of residential properties

were categorized as seasonal in 2000, showing a sizeable increase in second homes in town. County-wide, growth in seasonal housing units from 2000 to 2010 was slower at (19% compared to 44%).

Table II-3 Growth in Population and Housing in Waterford and Caledonia County 2000-2013					
Town of Waterford	2000 Census	2010 Census	% increase 2000-2010	ACS 2010-2014 Estimates	% increase 2000-2014
Total Population	1,104	1,280	11%	1,489	35%
Total Housing Units	477	580	22%	639	34%

Occupied Housing Units (households)	425	540	19%	540	27%
Housing Units for seasonal, recreational or occasional use	43	62	44%	NA	NA
Caledonia County					
Total Population	29,702	31,227	5%	31,109	4.7%
Total Housing Units	14,504	15,942	10%	16,011	10.4%
Occupied Housing Units (households)	11,663	12,553	8%	12,398	6.3%
Housing Units for seasonal, recreational or occasional use	2,004	2,376	19%	NA	NA
Source: U.S. Census Bureau Decennial Census, 2000 and 2010; American Community Survey 5-Year Estimates, 2010-2014.					

As shown in the tables above, Waterford has had significant growth in the last 10+ years, in both population and housing units. From 2000 to 2014 growth in housing units was estimated at 34%, and population was estimated to have increased 35%. This growth was significantly higher than the respective 10.4% and 4.7% increase county-wide in this period. Many towns in Caledonia County lost population during these years. Waterford also had a higher-than-average household size: Waterford’s average household size in 2010 was 2.52, as compared to 2.38 for Caledonia County and 2.34 for the State.

[Housing Affordability](#)

According to data compiled by the Vermont Housing Finance Agency, the trend over the past 10 years has been that median prices of primary residences in Waterford were generally higher than in Caledonia County. However, sales data from 2015 indicates a drop in the price of primary residences sold in Waterford. It is noted that this is based on the sale of just five primary residences in 2015.

Based on the 2010 Census, only 8.5% of households in Town rent their home, as compared to 27% of households County-wide. Median gross rent is also significantly higher in Waterford than in the County and State, most likely due to the lack of smaller rental units. Mobile homes, a common form of affordable housing in rural areas, made up just under 3% of all residential properties in town according to the 2015 grand list. Given the scarcity of traditional affordable housing options (rental units and/or mobile homes), residents of Waterford unsurprisingly had a median income that was significantly higher than the County and State average.

Housing is generally newer and in better condition in Waterford than in the County as a whole. The average age of construction for a house in Waterford was estimated as 1980, as compared to 1970 in Caledonia County. Based on 2010 census data, only 7 out of 580 total housing units in town (1%) lacked complete plumbing facilities, and only 3 of these housing units were occupied. A total of 13 housing units lacked complete kitchen facilities (2% of all housing units), and none

were occupied. Comparatively, 4% of all housing units in Caledonia County lacked complete plumbing facilities, and 4% lacked complete kitchen facilities.

Tables II-4			
Income, Housing Costs and Ability to Afford			
	Waterford	Caledonia County	Vermont
Median Family Income, 2009 -2013	\$79,250	\$54,941	\$68,111
Per Capita Income, 2009-2013	\$28,290	\$23,584	\$29,167
Median Household Income, 2009-2013	\$64,653	\$45,395	\$54,267
...homeowner households	\$63,000	\$53,134	\$64,771
...renter households	\$69,583	\$21,434	\$30,943
Median monthly owner costs, 2009-2013	\$1,096	\$959	\$1,208
...with mortgage	\$1,508	\$1,313	\$1,546
...without mortgage	\$593	\$521	\$631
...as percentage of household income	20.6%	21.4%	22.9%
Number of owner-occupied housing units, 2009-2013	487	9,166	182,537
...with owner costs at or above 30% of household income	20.9%	28.9%	32%
...with owner costs at or above 50% of household income	8.8%	12.1%	12%
Median gross rent (all units), 2009-2013	\$1,050	\$683	\$875
Source: Vermont Housing Finance Agency, www.housingdata.org			

Housing affordability is determined in part on the percentage of household income that goes towards housing costs, whether the housing unit is owner-occupied or renter-occupied. In general, if more than 30% of income is spent on housing costs, the household is considered to be financially stressed. According to data compiled by the Vermont Housing Finance Agency, 20.9% of owner-occupied housing units in Waterford had housing costs that were at or above 30% of the owner’s household income, and 8.8% had owner costs over 50% of their household income. Although renter-occupied housing unit costs were not as reliable, due to the low numbers of rental units in Waterford, the VHFA estimated that about 42% of renter-occupied households in Waterford had housing costs at or above 30% of their household income.

About 2% of households in Waterford received public assistance income, as compared to about 5% of households county-wide.

Planning Considerations

The 2015 Waterford Community Survey included questions regarding housing needs and appropriate residential densities. When asked to choose among six alternative housing types that were needed in town (one choice was “other”) residents identified independent senior housing

with some shared facilities, assisted living for seniors, and single-family houses on lots smaller than 2 acres, as needed alternative housing types.

When asked whether they were in favor of reducing the overall density of potential development in the Rural Residential District, 48% of residents responding to the survey said “yes,” 36% said no, and 16% were undecided. When asked what an appropriate density would be, the most frequent response was one dwelling per 10 acres.

Figure II-1
2015 Waterford Community Survey: Question #13

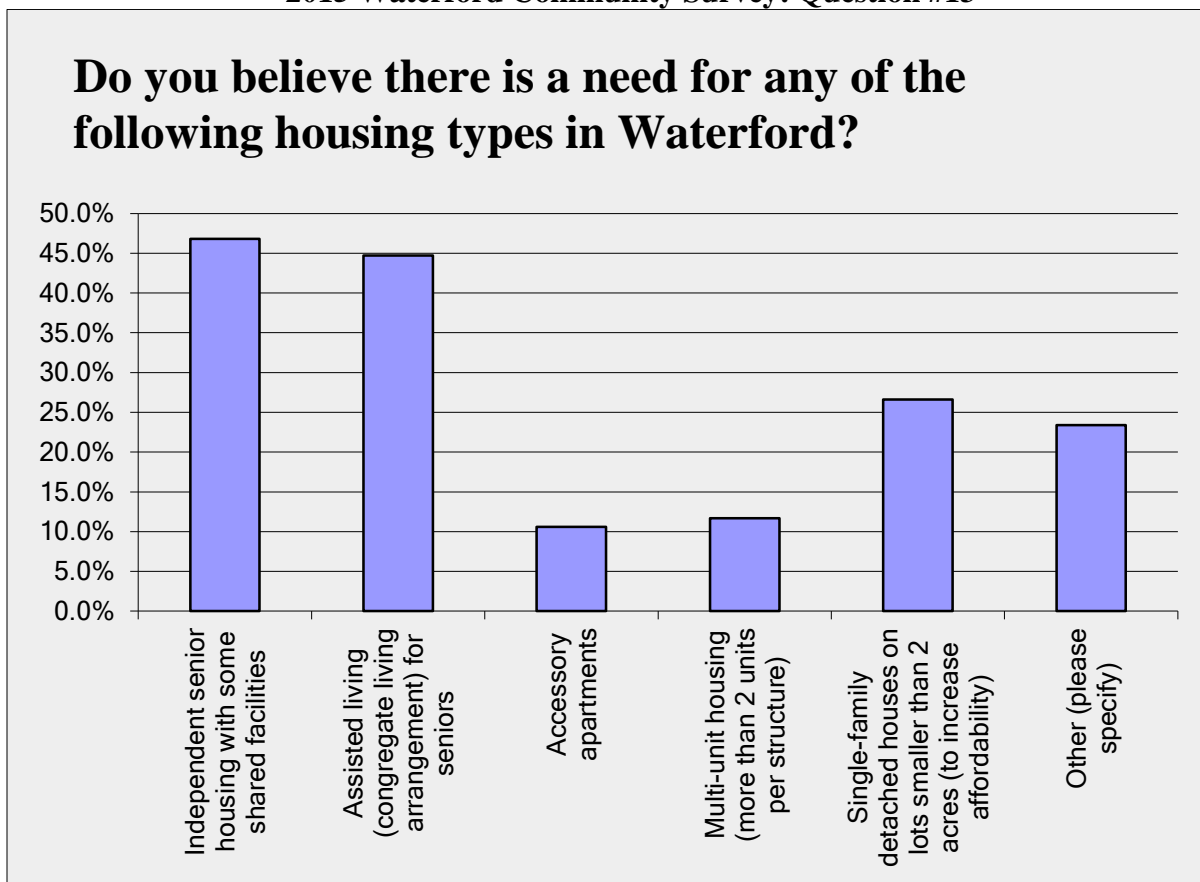
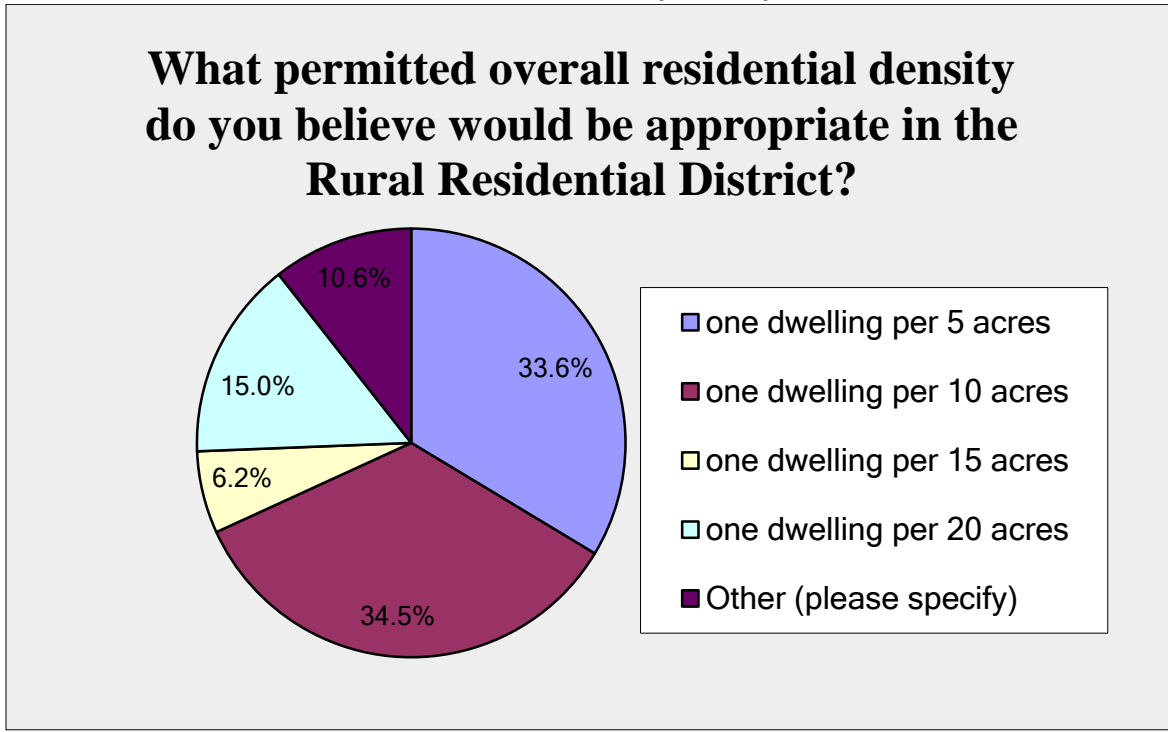


Figure II-2
2015 Waterford Community Survey: Question #21



Future residential development should be consistent with the Town’s desire to retain its rural setting and provide alternative types of housing, and should be consistent with the State’s planning goals in regard to development of land and provision of housing for all income levels.

To achieve this, areas of town that can better support future residential development at higher densities should be identified, as well as areas which should have a much lower residential density due to the resource value of the land.

The state planning goals direct that “intensive residential development should be encouraged primarily in areas related to community centers, and strip development along highways should be discouraged.” Waterford’s community centers include Lower Waterford Village where the municipal offices and library are located; and the area adjacent to the fire house, which serves as a community gathering place; and the Waterford School and grounds could also be considered centers of the community. In addition, the residential development along East Village Road in the northwest corner of Town is geographically, if not politically, connected to the East St. Johnsbury community center.

Currently, two-family residences are permitted as of right in the Village District, and multi-family dwellings are permitted as conditional uses in both the Rural Residential and Industrial Commercial Districts. Mobile home parks are permitted as a conditional use in the Rural Residential District. These alternatives to single-family detached homes provide an opportunity for the development of more affordable housing types in town.

The lowering of permitted density along with the inclusion of planned unit development guidelines in the Town's land use regulations would be a way of maintaining low overall density, preserving blocks of agricultural or forest land, and permitting more compact, affordable, land-efficient development of housing. The lack of municipal water and wastewater infrastructure means that any development that is built with residential lot sizes smaller than two acres may require a community water/wastewater system.

Goals and Action Steps

Goals

1. Preserve Waterford's stock of older houses and encourage their continued use to provide a range of housing choices.
 - Provide incentives for the conversion and rehabilitation of vacant houses to needed rental housing units.
 - Review dimensional requirements in the Village District and revise as necessary to allow for appropriate improvements and additions to existing properties.
2. Maintain an adequate standard of housing for all its residents.
 - Ensure that state building code for rental properties and relevant local land use regulations are enforced.
3. Maintain an overall low residential density in order to retain Waterford's rural character.
 - Revise local zoning to create additional classes of districts that maintain a residential density lower than the currently permitted 1 unit per two acres. Use data on existing land use, land cover, soils, and significant natural or scenic features (as depicted on the maps accompanying this plan) to guide the boundaries of new districts.
4. Provide options for affordable housing that is in keeping with the character of Waterford's rural setting, and which retains the pristine water quality, scenic and historic areas, and natural resources.
 - Provide for density-based zoning or planned unit development regulations that permit smaller house lots while preserving significant blocks of rural land and maintaining a low overall residential density.
5. Large housing developments (five lots or more) should be located within walking distance (approximately ½ mile) of existing community centers or should be self-contained in regard to new road construction and maintenance, and should provide for services, facilities, and open space as needed.
 - Ensure that local land use regulations provide adequate standards to achieve these objectives.

III. COMMUNITY FACILITIES AND SERVICES

Existing Conditions

Water and Wastewater

There is presently no municipal water supply system for the Town of Waterford. Water for domestic use is obtained from individual driven wells or ground water. Much of the rural areas rely on springs.

St. Johnsbury's primary water supply source is Stiles Pond, located within the boundaries of Waterford. St. Johnsbury has landholdings of approximately 1,132 acres surrounding the Pond and protecting its immediate watershed.

The 20" main for St. Johnsbury follows the outlet from Stiles Pond, along Route 18, and through the area served by the I-93/Route 18 interchange.

Ground water favorability maps published by the Vermont Department of Water Resources in 1967 indicate that the area following the course of Chandler Brook is underlain by thick deposits of course-grained stratified glacial drift and has excellent ground-water potential. It is cited as an area suitable for exploration to locate wells that should yield sufficient quantities of water to meet municipal and industrial requirements. Other areas which could yield shallow wells and infiltration galleries that should yield sufficient quantities of water for domestic, commercial and light industrial use are located along Duck Pond Brook and Stiles Pond area, but this area is in proximity to the source protection area of a public water supply and cannot be overdeveloped. Lesser areas which may have high yield lenses but not sustained storage or recharge capabilities are located all along the Connecticut and Passumpsic Rivers.

Presently there are no municipal or collective sewage systems within the Town of Waterford.

Both individual wells and wastewater systems are permitted at the State level by the Drinking Water and Groundwater Protection Division of the Vermont Department of Environmental Conservation. The soils map contained in this Plan identifies suitability of soils for conventional wastewater systems, and gives an indication of the development potential of the land. Applications for potable water and wastewater system permits can be made online at <http://drinkingwater.vt.gov/poregionalofficespermits.htm>.

If residential densities continue to be low in Town, individual water and wastewater systems should be sufficient. Denser development may require community water and/or wastewater systems.

Solid Waste Disposal

The Town of Waterford is a member of the Northeast Kingdom Waste Management District, and works cooperatively with the District to manage the solid and hazardous wastes in accordance

with the District's solid waste implementation plan. Solid waste is collected at the Waterford Town Garage. Private contractors collect solid waste for those residents who wish to make use of their services.

Act 148, Vermont's Universal Recycling Law, was passed in 2012. The purpose of this law was to increase recycling, reduce greenhouse gas emissions, decrease the dependence on landfilling, and reduce municipal expense by diverting recyclables and compostable materials from the waste stream. This law enforced the practice of unit-based pricing for trash disposal, also called "Pay As You Throw," as of July 2015. As of that date, the disposal of recyclable materials (glass, metal, plastics 17 #1 and #2, cardboard and paper) are banned from landfills. The law will ban the disposal of leaves, yard debris and clean wood in July 2016 and food scraps by July 2020.

All solid waste facilities (transfer stations, drop-offs, and landfills) that collect trash were required to offer collection of baseline recyclables by July 2014. Solid waste facilities and commercial haulers were required to offer collection of leaf and yard debris as of July 2015, and will need to offer collection of food scraps by July 2017. Facilities cannot charge an additional fee for the collection of recyclables, but they can charge for the collection of yard debris and food scraps.

Broadband Availability

Available broadband speed in Vermont is categorized as:

- 100/100 -- upload and download at speeds of 100 megabytes per second
- 100/10 -- download at 100 mbps and upload at 10 mbps(available in areas served by cable)
- 4/1 -- download at 4 mbps and upload of 1 mbps
- 768/200 – download of .768 mbps and upload of .2 mbps

According to the 2014 Vermont Telecommunications Plan, The Vermont Department of Public Service has defined the minimum objectives for high speed internet to be 4/1 until 2017, at which point the objectives will be raised to 10/1. In 2020, the objectives will be raised to 100/100 to reflect Vermont's 2024 goal.

The Federal Communications Commission updated the definition of broadband as part of its 2015 Broadband Progress Report to be a minimum download speed of 25 mbps and a minimum upload speed to 3 mbps (25/3), which greatly increased the number of households nationwide without broadband access.

According to data released by the Department of Public Services in 2015 identifying the number of E-911 points served by various speeds of internet, there are a total of 621 E-911 points served in Waterford: 113 points at 100/10; 4 points at 4/1; and 504 points at 768/200.

Public Buildings

Davies Memorial Library: Waterford may have the only “honor system” library remaining in Vermont. The physical structure is a fine colonial structure, which has received excellent maintenance. It consists of a large open room that serves all the library functions, some private functions and various public meetings; and a children’s room. In the same building, the downstairs houses Waterford’s U.S. Post Office, Town Clerk’s and Treasurer’s Office.

The library currently holds a collection of approximately 3,000 books, periodicals, movie videos, DVDs and audio books. The Town makes an annual appropriation to the library annually, which is used for maintenance, operation, expenses and salary for the part-time librarian. In addition, the Board of Trustees and Friends of the Library oversee annual fundraisers to supplement the library’s budget.

Congregational Church: This structure is a fine example of New England Colonial church architecture, very carefully detailed, and in excellent repair. It consists of the main hall and a vestry, which has traditionally served many community activities including church suppers, local meetings and elections, and gatherings.

Waterford Elementary School: This facility is discussed in the section of the Plan on education.

Town Garage: The Town garage, located on Duck Pond Road, was constructed in 1970 and houses all the town equipment. It should adequately serve the town’s needs for the next five years.

Volunteer Fire Department: Waterford has a volunteer fire department with rescue. At the present time, the fire department has three trucks and a garage in which to keep them. The department has approximately 23 volunteers.

Public Safety

Current police services consist of protection through the State Police and the County Sheriff’s Department. The State Police outpost is located just north of the Waterford town line, the County Sheriff’s office is located in St. Johnsbury, and thus they are readily available. There is a Town Constable and second Constable, which are quasi-police positions. They are noncommissioned positions and as such have no authority in either civil or criminal matters, only enforcement of town ordinances. The primary duty of this officer is that of tax collector. The only public safety problems expressed centered around security at isolated public buildings and minor traffic and civil problems.

Emergency Management

The town of Waterford has a Local Emergency Operations Plan (LEOP) and an Emergency Management coordinator appointed by the Selectmen. There are two designated emergency

shelters: the Waterford Elementary School and the Union Baptist Church. The fire department has a mobile generator for emergencies and the firehouse is equipped with a propane-fired generator for use in emergencies as a command center.

See Land Use section of Plan for a discussion of recreational facilities.

Planning Considerations

Internet Access

The Waterford Community Survey conducted in the Spring of 2015 identified access to high speed internet as the top service in need of improvement in Town, followed closely by cell phone service. Improved broadband service will provide telecommuting opportunities, will support the growth of home-based businesses, and provide better access to online educational resources, and certain types of medical care (telemedicine).

Water and Wastewater

Areas that have limited suitability of soils for individual septic systems may need to be developed at a lower density than is currently permitted under zoning in order to avoid the need for collective water and wastewater systems.

It is possible that higher-density development could locate in proximity to the I-93/Route 18 interchange if permitted to tap into the water main of the St. Johnsbury water system.

Goals and Action Steps:

1. Achieve broadband coverage throughout the Town
 - The Town of Waterford will work with the Connectivity Division at the Vermont Department of Public Service to provide information on areas in Town underserved by broadband and to help identify solutions that will best resolve connectivity problems
2. Future development should take into consideration the proximity of the existing public water supply main and the Source Protection Plan for the St. Johnsbury water supply.
 - Coordinate land use decisions within the Stiles Pond Source Protection Area with the Town of St. Johnsbury.
 - Investigate possibility of tapping into public water main to support appropriate development in Waterford.
3. Any major developments in Town should be required to develop their own disposal systems in accordance with State permitting requirements, and which will require no commitment from the Town.

- Ensure that local land use regulations articulate requirements for development of community systems if needed.

4. Manage solid waste in a way that protects the environment and is in keeping with State recycling laws

- The Town of Waterford should remain a member of the Northeast Kingdom Waste Management District, as long as it remains economical and effective.

IV. EDUCATION

Introduction

State of Vermont goals related to education include:

- To broaden access to educational and vocational training opportunities sufficient to ensure the full realization of the abilities of all Vermonters.
- To plan for, finance and provide an efficient system of public facilities and services to meet future needs.

Existing Conditions

Waterford operates an elementary school (grades Pre-School to eighth) within the Town and tuitions its high school students to many secondary educational schools including St. Johnsbury Academy, Lyndon Institute, Danville High School and White Mountains Regional High School in New Hampshire.

The Waterford Elementary School was built in 1957, with additions in 1987, and 2003. The school has nine regular classrooms, a library, computer lab, music room, gym, art room, kitchen, administration offices, rest rooms, etc. The building has a capacity of about 180 students.



The school is situated on Duck Pond Road near the center of Town on an eight-acre lot, which allows room for additional expansion. Through the generosity of the community and parents, the

school's playground has a soccer field, baseball diamond, outdoor basketball court, and playground equipment, and a nature trail which was recently rehabilitated.

Students with special learning needs receive instruction five days a week. Based on the child's needs the school, as required by Vermont and Federal law, will tailor a program for the child.

Waterford School is a member of the Essex-Caledonia Supervisory Union (ECSU). The superintendent and necessary staff are hired on a regional basis through the ECSU; this includes the staff necessary to provide services such as speech, hearing and other special educational needs. The Waterford School works in conjunction with the ECSU when developing a program for a child in need of special education.

In accordance with Act 77 enacted by the State legislature in 2014, beginning in the Fall of 2015 all students in grades 7 and 8 will have a personal learning plan that helps them tailor their education to their career goals.

Based on data from previous Town Plans, enrollment at the Waterford School fluctuated over the years between a low of 77 in 1965 to a high of 186 in 2006. The most recently available enrollment data shows that a total of 143 students were enrolled during the 2015-2016 school year, with 17 of those students being in the pre-K grades. Table IV-1 below shows enrollment data for the last six years. The average enrollment for that period was 160.

Table IV-1 Waterford School Enrollment											
Year	PK/EEE	Kind.	1st	2nd	3rd	4th	5th	6th	7th	8th	Total
2015-2016	17	15	11	13	11	11	22	10	17	16	143
2014-2015	17	9	14	11	11	23	13	16	16	22	152
2013-2014	15	16	12	9	21	14	14	14	21	15	151
2012-2013	22	12	12	22	14	15	14	21	17	25	174
2011-2012	22	10	19	13	16	14	20	14	23	26	177
2010-2011		18	11	15	14	19	18	20	26	24	165
2010-2016 average											160
Projected FY 2017	N.A.	17	12	14	12	11	11	22	10	17	NA

As of January 2016, there are the equivalent of 17 full time teachers, including a full time principal, plus paraeducators as required for the students' needs. Waterford School also employs one full and one part time custodian.

In 2015 an afterschool program was implemented from 2:45 to 4:30 P.M. Monday through Thursday.

Secondary Schooling: After the eighth grade, Waterford children may attend the school of their choice. The Town pays full tuition to St. Johnsbury Academy or other surrounding town high schools in Vermont, or pays the Vermont State Average to any other State-approved high school.

The anticipated number of high school tuitions to be paid in FY 2017 (as reported in the school district report for year ending June 30, 2015) is a total of 86, with the vast majority of tuition payments (75) going to St. Johnsbury Academy.

The announced tuition for St. Johnsbury Academy for Fiscal Year 2017 is \$16,315. Statewide, the average secondary tuition for union school districts in FY 2017 is \$14,773.

Because of the way in which education funding is structured in Vermont, growth that leads to more school-aged children does not necessarily result in an increase in the education tax rate in that town, even if the overall school budget increases. Vermont’s state-funded education system links property tax rates to per-pupil spending rather than the overall school budget, so districts with large schools or that belong to a union school district tend to see lower education tax rates because of the economy of scale.

For towns that offer school choice, education costs are also affected by tuition rates at the schools to which students are sent.

Since Waterford has school choice only for grades 9 through 12, the per-pupil spending is based on both the elementary and high school student spending combined. In FY 2015 per-pupil (that is, per “equalized” pupil) spending in Waterford, as reported by the Department of Education, was \$14,877.73. The term “equalized” is used because students are weighted differently depending on the grade level or need for special services. For example, high school students are weighted more heavily than elementary school students. The average per-pupil spending statewide for school districts that operate an elementary school and tuition high school students was \$13,738 for FY 2015.

The resulting homestead tax rate for Waterford in FY 2015 was 1.5703. For purposes of comparison, the total school enrollment, per-pupil spending, and tax rate of the neighboring Towns of Barnet and St. Johnsbury are shown in the table IV-2 below. Both these towns are like Waterford in that they operate an elementary school and offer school choice for high school grades, and the vast majority of their high school students attend St. Johnsbury Academy. While St. Johnsbury has about four times the number of students that are in the other towns, its lower per-pupil spending and resulting lower homestead tax rate is largely due to the economy of scale in the operation of its elementary school.

Table IV-2 School Enrollment and Spending in Waterford and Adjacent High School Choice Towns			
District Name	FY 2015 Equalized Pupils	FY 2015 Education Spending Per Equalized Pupil	Homestead Education Equalized Tax Rate
Waterford	242	\$14,877.73	1.5703
Barnet	280	\$14,707.65	1.5523
St. Johnsbury	1,084	\$12,062.52	1.2732

The Waterford School District Report for the year ending June 30, 2015 notes that the FY 2016 per pupil spending was \$15,166 but dropped to \$15,093 for FY 2017, which also resulted in a drop in homestead education tax rate for FY 2017.

Planning Considerations

In the Community Survey undertaken in the Spring of 2015, High School Choice was one of the top three features that residents identified as important to a high quality of life in the Town.

Although Waterford has had significant growth in the last 10+ years, in both population and housing units, school enrollment at the Waterford School has decreased over the last five years, reflecting trends throughout the Northeast Kingdom and the State.

Act 46 of 2015 was enacted by the State Legislature in response to the shrinking student population statewide, in an attempt to reduce the high cost of education in the State. The findings of the act note: “National literature suggests that the optimal size for student learning is in elementary schools of 300 to 500 students and in high schools of 600 to 900 students... National literature suggests that the optimal size for a school district in terms of financial efficiencies is between 2,000 and 4,000 students.”

However, the Act clearly states that the intent is not to remove the option of school choice, or to force the closure of schools.

The 2016 Superintendent’s Report for the Essex-Caledonia Supervisory Union reports that school boards in the ECSU that operate pK-8 schools have joined an exploratory committee to investigate how merging the governance structure of 6 to 12 school districts into one supervisory district would affect education quality and efficiency. The assumption going into the study is that all individual schools in the new supervisory district would remain open and all students in grades 9 – 12 would maintain high school choice as they have it currently.

It is not anticipated that growth in population and school age children will necessitate expansion of the Waterford school building in the near future.

V. TRANSPORTATION

Introduction

According to the State's land use statute, a municipality's transportation plan should consist of a map and statement of present and prospective transportation and circulation facilities showing existing and proposed highways and streets by type and character of improvement, and where pertinent, parking facilities, transit routes, terminals, bicycle paths and trails, scenic roads, airports, railroads, and port facilities, and other similar facilities or uses, with indications of priority of need.

Relevant State planning goals are:

- To plan development so as to maintain the historic settlement pattern of compact village and urban centers separated by rural countryside.
- Public investments, including the construction or expansion of infrastructure, should reinforce the general character and planned growth patterns of the area.
- To provide for safe, convenient, economic and energy efficient transportation systems that respect the integrity of the natural environment, including public transit options and paths for pedestrian and bicyclers.
- Highways, air, rail, and other means of transportation should be mutually supportive, balanced, and integrated.
- The rate of growth should not exceed the ability of the community and the area to provide facilities and services.
- New development in identified flood hazard, fluvial erosion, and river corridor protection areas should be avoided. If new development is to be built in such areas, it should not exacerbate flooding and fluvial erosion.

Existing Conditions

Transportation needs in Waterford are currently met almost totally by the private automobile. The only exceptions are privately contracted school bus services. Trucking services are available in St. Johnsbury. The Caledonia County State Airport at Lyndonville serves regional air needs. Washington County Railroad operates a rail freight line through the western corner of the Town, but there is no terminus in Waterford.

Highways

As of February 10, 2015, there are 71.22 miles of traveled highways within the Town of Waterford. Construction and maintenance costs are shared by the community, State, and Federal governments. The degree of state and federal participation is based on the type of highway and its relative importance in terms of use. Federal programs are administered through the VT Agency of Transportation.

Functional Classification of Highways

As required, the highways in Waterford have been classified according to projected use in 1990. Under this classification system, roads are presently classified as indicated in Table V-1.

**Table V-1:
Functional Classification of Highways**

Classification	Highway
Major Arterials	Interstate 91 Interstate 93
Rural Major Collectors	U.S. Route #5 VT. Route #18
Rural Minor Collectors	Cross Rd (SA #1) Lower Waterford Rd (SA #2) Daniels Farm Rd (SA #4) Duck Pond Rd (SA #3)
Local Roads	All other highways.

Administrative Classification of Highways

Highways in Vermont are classified into one of four administrative classes, which governs the responsibility and level of funding of each unit of government. The following mileages and classifications are located in Waterford.

Interstates - There are 14.398 miles (including 2.243 miles of ramps) of interstate highways in Waterford. This total is made up of 1.608 miles of I-91 and 10.547 miles of I-93.

State Highways – There are 8.713 miles of state highways in Waterford. The Vermont Agency of Transportation has full control and pays the cost of construction and maintenance. These include U.S. Route 5 and State Route 18. The town receives \$0.00 per year per mile for maintenance purposes.

Class 1 – The Town of Waterford does not have any Class 1 town highways.

Class 2 - There are 15.51 miles of Class 2 Town highways. These are referred to as State Aid highways and are part of the State’s secondary system. The Vermont Agency of Transportation pays \$4004.69 per year per mile for maintenance. Class 2 Town highways are eligible for incentive grants for paving and reconstruction with up to 80% state reimbursement. Class 2 Town highways are also eligible for incentive grants for replacement or rehabilitation of culverts 36” or greater in diameter and bridges.

Class 3 - There are 32.60 miles of Class 3 roads in Waterford. These are town roads and the responsibility for construction is up to the town. The State pays \$1,466.26 per year per mile for maintenance. Class 3 Town highways are eligible for incentive grants for replacement or rehabilitation of culverts 36” or greater in diameter and bridges. It can readily be seen that the majority of highways fall in this category and hence the reason for a substantial highway budget for the Town.

Class 4 - There are 8.95 miles of Class 4 Town highways for which the Town still holds the right-of-way.

Present Road Conditions

US Routes 5 and VT State Rt. 18 are hard surface asphalt constructed to federal standards and are generally in good condition. Of the Class 2 roads approximately half are gravel surfaced. These are generally in good condition, except for spring months when the combination of wetness and heavy travel cause rutting on the gravel sections. All of the Class 3 roads are gravel surfaced and are in adequate condition or can be kept so with seasonal maintenance. (See Flood Resilience section of this Plan for a discussion of the road erosion inventory).

Traffic is focused on U.S. Route 5 and on State Route 18. Other principal roads that are used heavily are the Daniels Farm Road, Lower Waterford Road and Duck Pond Road (with heavy truck traffic).

Other Transportation Services

Railroad: The Washington County Railroad maintains a rail line through the western corner of the Town, which provides freight service only. This rail line could support the addition of a siding. The freight depot is in St. Johnsbury, as is a connecting line with the line for east/west transport.

Bus: Rural Community Transportation Inc. services on an as requested basis for low cost local public transportation.

Air: Caledonia County State Airport is the regional airport serving the area and is about 15 miles away, in the Town of Lyndon. Efforts are underway to upgrade services at the airport presently, and to include flight instruction, a fixed base operator, maintenance, and charter freight.

Recreation trails: The Waterford Nature Trail is a closed loop trail near the Waterford School and is the only one signed as a walking trail. Other options for walking, hiking and recreational use might include Class 4 roads, if deemed impassible for vehicular traffic.

Planning Considerations

The 2015 Waterford Community Survey indicated that residents had an interest in seeing the development of bike paths, hiking trails and cross country ski trails. There was also an interest in improved snowmobile trails and ATV trails.

Although the interest in bike paths was framed as a response to a question regarding recreational facilities, mobility options for residents could be improved by addressing any safety concerns identified along the routes most frequently used by bicyclists. This could be addressed by widening the shoulder along Route 18 and lowering the speed limit on the approach to Lower Waterford Village

When residents were asked if they had ever been impacted by a flooding event in Waterford, the most frequently reported impact was washout of a local road followed by washout of a driveway. While the adopted state road and bridge standards (“Orange Book”) provide road, ditch and maintenance requirements, these are not ordinarily applied to private driveways.

State-wide requirements

In 2014, State statute was amended to require that whenever a proposed site plan involves access to a State highway, the applicant for site plan approval needs to provide a copy of a “letter of intent” from the Agency of Transportation confirming that the Agency has reviewed the proposed site plan and is prepared to issue an access permit, setting out any conditions that the Agency proposes to attach to the Section 1111 permit. This would apply to any development in Waterford that would take access from Route 18 or Route 5.

Any proposed subdivision of lands abutting State highways must comply with AOT standards, including the requirement to provide a frontage road or roads.

The Municipal Roads General Permit

The 2015 Vermont legislative session created a new regulatory framework for all work on Town Highways, The Municipal Roads General Permit (MRGP), as part of Act 64, (the Vermont Clean Water Act.) This general permit is intended to achieve significant reductions in stormwater-related erosion from municipal roads, both paved and unpaved. Research and water quality monitoring has indicated that roads are responsible for 6-10% of phosphorus loads to Lake Champlain and other waterways, and roads contribute over 10% of sediment loads. Excessive sediment and phosphorus can cause algae blooms, increase water turbidity (cloudiness), and degrade fish and invertebrate habitat.

Municipalities will need to develop and implement a customized, multi-year plan to stabilize their road drainage system. The plan will include bringing road drainage systems up to basic maintenance standards, and additional corrective measures to reduce erosion. The permit is required by H.35/Act 64, the Vermont Clean Water Act, and the Lake Champlain Phase I TMDL and applies to all Vermont municipalities.

Updated information can also be found on the program’s website at:
http://www.watershedmanagement.vt.gov/stormwater/htm/sw_municipalroads.htm

Municipalities will need to inventory their road network and identify priority road segments that are connected to surface waters through ditches, culverts or other drainage structures. Towns will then report to DEC which of these priority road segments meet and do not meet MRGP standards. Towns will prioritize road segments and develop remediation plans and implementation schedules (capital budgets).

Towns can apply for funding through the Better Back Roads Program for both the inventory and remediation process. There is technical assistance through the County Conservation District, VTrans Maintenance District, Vermont Local Roads and NVDA.

DEC will be developing a draft MRGP and standards by December 2016 and a final version one year later. Towns will begin applying for MRGP coverage between 2018-2021. Exact dates are to be determined. Towns can be apprised of the coming requirements through participation in the Regional Road Foreman's Group facilitated by NVDA and their VTrans District, or by going to the DEC MRGP website above. Before the MRGP and standards are finalized, towns can begin identifying road erosion sites that could potentially impact waterways and begin implementing road best management practices. Towns identifying sites and implementing BMPs will be credited for this work as part of the MRGP.

Scenic Roads

Most roadways in Waterford are scenic in one way or another, but some deserve special attention to preserve their scenic character.



View South from Hale Rd near Intersection of Suitor Rd

The following are several of the many roads in town with grand views:

- The intersection of Hale Road and Valley View Road has views overlooking the Connecticut River Valley and good vistas for 1,000' west along Hale Road, a mile to the south along Valley View Road, and east along Hale Road to Suitor Road.
- East Village Road has exceptional views for its entire length from the St. Johnsbury line to its end.
- Campbell Road, from Old County Road north through the woods, to its terminus at I-93.
- Old County Road with views overlooking the Connecticut River Valley from Mad Brook Road south to the picnic area on the Connecticut River.
- High Ridge Road has a variety of views for its full length from Old County Road to the Concord Town Line. (Note: the last ¾ mile of this road is a class 4 road with limited maintenance; travel should be with care or by foot).
- Shadow Lake Road has grand views from Old County Road to the Concord Town Line, especially to the south overlooking Moore Reservoir.
- Daniels Farm Road and sections of Route 18 afford scenic views.



View Southwest from Daniels Farm Rd at intersection of Valley View Rd.

Speed Limits

All town highways should have a speed limit of not more than 35 miles per hour for gravel-surfaced roads, and not more than 40 miles per hour for paved roads. The White Village Area is 25 miles per hour. For safety of pedestrians and cyclists, a lower speed limit on State Route 18 as it approaches Lower Waterford Village is advisable.

Policies

Orderly growth in Waterford is not dependent on any new road construction or acceptance of roads built by others. Present service is quite adequate and there is plenty of room for growth on existing roads. There are no traffic congestion problems, but the number and concentration of access points should be closely monitored to retain this situation. The Town has no desire to upgrade any roads from their present classification. Should the public good and necessity require the Town to take over any road, it is the Town's desire that those directly benefiting from this action bear the cost of building or upgrading any such road to State of VT Agency of Transportation standards. The level of maintenance will be related to the classification system and the level, type and intensity of use.



View southwest along Hale Road between Sutor Rd and Valley View

Goals and Action Steps

1. Maintain the scenic character and/or scenic views from the roads identified above.
 - The Selectboard and the State of Vermont District Highway Engineer should consult with the Planning Commission regarding its recommendations concerning any plans for any reconstruction or major maintenance affecting these designated scenic roads (such as proposed road widening or tree removal).

- Upgrading of town roads, especially scenic roads, should conform to the basic standards of the booklet “Vermont Backroad,” prepared by Northeastern Environmental Design, of which the town has a copy on file. No right-of-way less than fifty feet in width should be permitted for any new road.
2. Provide for safe and convenient alternative transportation options to the private automobile
 - In addition to Route 18 where it approaches Lower Waterford Village, identify specific areas where roads or trails could be improved to increase safety by bicyclists and pedestrians.
 3. Do not increase the miles of Town road that need maintenance.
 - Ensure that subdivision regulations provide for a mechanism by which any new subdivision roads created are maintained in perpetuity by a homeowners association or other mechanism, to ensure that maintenance responsibility does not fall on the Town.
 4. Identify road projects that will need to be completed in accordance with the upcoming MRGP and seek sources of funding.
 - Seek assistance from NVDA transportation planning staff
 5. Ensure that new road and driveway construction does not negatively impact waterways.
 - The layout of new subdivision roads and driveways, particularly in identified flood hazard, fluvial erosion, and river corridor protection areas, should be avoided. If new development is to be built in such areas, it should not exacerbate flooding and fluvial erosion.

VI. ENERGY

Introduction

State statute directs that a municipal plan contain an energy plan that includes:

- an analysis of energy resources, needs, scarcities, costs and problems within the municipality,
- a statement of policy on the conservation of energy, including programs to implement that policy
- a statement of policy on the development of renewable energy resources, and
- a statement of policy on patterns and densities of land use likely to result in conservation of energy

Resources

As in many of the towns in Vermont, Waterford uses a number of different forms of energy, which come from a variety of sources. Electricity is supplied by two different utilities. Green Mountain Power serves the entire Town of Waterford. Petroleum-based fuels are available from several suppliers most of which are located in St Johnsbury and Littleton. Wood is locally and regionally available from many sources, and solar and wind are also resources that can be harnessed for energy on individual properties.

Needs, Scarcities and Problems

The energy sources described above are more than ample to meet the needs of the populace of Waterford. Therefore, there are no scarcities of any of the energy resources used in Waterford. However, the availability of petroleum-based fuels is subject to shortages or distribution difficulties due to weather conditions and global political events. Such problems the Town of Waterford has little or no control over.

Rising energy costs could be a very real problem for some families. If energy suppliers are not already doing so, the Town of Waterford encourages them to do as much as possible to either keep costs down, or to reduce the rate at which costs are increasing. In addition, if energy suppliers are not already doing so, the Town of Waterford would also encourage these businesses to establish budget payment plans that spread energy costs out over the year.

Costs

Table VI-1 below shows the relative cost and efficiency of different types of fuel, as of November 2015.

<p style="text-align: center;">Table VI-1 Cost and Efficiency of Fuel Sources</p>

WATERFORD TOWN PLAN
2.25.2016 DRAFT

Type of Energy	BTU/unit	Typ Effic	\$/unit	\$/MMBtu	High Efficiency	\$/MMBtu
Fuel Oil, gallon	138,200	80%	\$2.27	\$20.55	95%	\$17.31
Kerosene, gallon	136,600	80%	\$2.78	\$25.43		
Propane, gallon	91,600	80%	\$2.41	\$32.85	93%	\$28.26
Natural gas, ccf	100,000	79%	\$1.39	\$17.59	95%	\$14.67
Electricity, kWh (resistive heat)	3,412	100%	\$0.15	\$43.46		
Electricity, kWh (cold climate heat pump)	3,412		\$0.15		240%	\$18.32
Wood, cord (green)	22,000,000	60%	\$227.14	\$17.21		
Pellets, ton	16,400,000	80%	\$294.00	\$22.41		
Source: November 2015 Vermont Fuel Price Report, Department of Public Service MMBtu: million British thermal units						

Conservation

The Town of Waterford has been very proactive over the years where energy conservation is concerned. The Town's actions have had two positive impacts in that they have reduced the Town's energy usage as well as reducing the cost of energy to the taxpayers.

Over the past 10 years the Town of Waterford has made improvements to the Waterford School and Town Clerk's office that have made them more energy efficient. Energy related projects at the school have included the replacement of the heating plant, lighting and, in the gymnasium, the replacement of windows. In addition, when the school addition was built in 1988, it was done so with materials that would make it energy efficient. At the Town Clerk's office the lighting was replaced with energy efficient lighting. In order to make the Town's buildings more energy efficient, if possible, the Town of Waterford recommends that an energy audit be conducted in all town owned buildings. Then the necessary improvements should be made to these buildings to make them more energy efficient.

Renewable Energy Resources

Renewable energy resources are energy sources that are either never depleted or are quickly regenerated. These would include energy resources such as solar, wind, water, and wood. All of these energy sources are available in Waterford.

With much of the Town's area forested, local supplies of firewood are more than adequate, and many buildings use wood as either their primary or secondary source of heat. Some residents have installed equipment to utilize solar energy to produce on-site electricity and hot water, and some buildings may be designed to maximize solar heat. Given Waterford's elevation and topography, there is potential in some areas for wind generation; in fact, wind energy is being used on a limited basis. There are presently two residential-scale wind turbines in Waterford.

To reduce our dependence on outside energy resources and their costs, the Town encourages the expanded development and use of community-scale renewable energy resources and energy conservation measures that reduce the overall need for energy. Renewable energy that is produced locally improves the local economy and the general environment, and also increases our independence from energy resources far beyond our control. Any review of proposed renewable energy developments in Town should take into consideration these local benefits.

In order to encourage the use of renewable energy devices, the Vermont State Statutes at 24 V.S.A. Section 4413 exempts from local regulation the installation of rooftop renewable energy devices that serves to heat water, space, or generates electricity; and does not permit local bylaws to prohibit the installation of other types of solar collectors or energy devices based on renewable resources.

The Property Assessed Clean Energy (PACE) Program, if established locally, helps eligible residents finance weatherization and efficiency improvements or install renewable energy systems on their properties. The value of those improvements is added to the assessed value of the property with the cost of the improvements paid back as an assessment over a period not to exceed twenty-years. Since the payments are tied to the property rather than the owner, PACE financing payments can be transferred to a new homeowner at any time. For more information see the “PACE Decision Making Packet” prepared by Efficiency Vermont and available on their website: <http://www.encyvermont.com>

Energy Standards for New Construction

State statute at 24 V.S.A. § 4449, requires that when a municipal land use permit is sought, the administrative officer shall provide the applicant with a copy of the applicable building energy standards under 21 V.S.A. §§ 266 (residential building energy standards) and 268 (commercial building energy standards). This requirement is intended to increase compliance with the energy standards.

Land Use Patterns and Energy Conservation

There are several development techniques that are likely to result in the conservation of energy. Earth sheltered homes and homes built on south facing slopes are generally less expensive to heat. Homes that are clustered require shorter networks of streets and utilities. Shorter streets and electrical lines require less energy to build and maintain. In addition, with shorter electrical lines there is less line loss. This alone can result in a significant savings of money and energy.

Other Planning Considerations

Act 56 of 2015 created a Renewable Energy Standard and Energy Transformation (RESET) program for electric utilities, to replace the existing “Sustainably Priced Energy Enterprise Development Program.”

As part of this legislation, setbacks requirements for solar energy plants requiring a Certificate of Public Good from the Vermont Public Service Board were added to 30 V.S.A., Section 248, in response to concern with the visual impact of such installations. The Act also requires that ground-mounted solar plants comply with the screening requirements of a municipal bylaw, unless such compliance would “prohibit or have the effect of prohibiting the installation of such a facility or have the effect of interfering with the facility's intended functional use.”

The minimum setbacks are different depending on the size of the solar facility. For a facility with a plant capacity exceeding 150 kW, the plant must be set back 100 feet from the traveled way of a State or municipal highway, and 50 feet from all other property boundaries. For a facility with a plant capacity less than or equal to 150 kW but greater than 15 kW, the setback is 40 feet from a highway or 25 feet from other property boundaries. No setbacks are established for facilities less than or equal to 15 kW.

In 2015-2016, industrial-scale solar energy developments were proposed in the Town of Waterford, which are subject to review and approval by the Public Service Board in accordance with State statute.

A local planning consideration for these installations is the potential impact on scenic and agricultural resources. The preservation of Waterford’s rural setting and scenic views, and support for an agriculturally-based economy are values expressed in this Plan, and reflect the opinion of the community as demonstrated in the 2015 Waterford Community Survey. If the solar arrays are located on property that is being used for or has potential to be used for productive farmland, it removes this land from the local inventory of land available for agricultural uses. Although the land is typically leased by the company installing the solar array, the lease term is typically 30 years. Based on current technology, solar arrays typically have a 25 year lifespan, so a decommissioning plan is an important consideration.

Policy

The Town of Waterford supports the use of responsibly sited and developed residential-scale and commercial renewable energy projects. The Town does not support the development of renewable energy installations that negatively impact scenic views or remove valuable agricultural land from current or potential productive use. Waterford desires to maintain the working landscape and views important to its rural cultural aesthetic.

1. Standards:

Projects must meet the following standards outlined below in order to be considered “orderly development” supported by this plan and in order to not unduly impact the productive use of agricultural lands and the aesthetics of the rural countryside this plan intends to protect:

- A. Siting. Where a project is placed on the landscape constitutes the most critical element in the aesthetic siting of a project. Poor siting cannot be adequately mitigated. Accordingly, all renewable energy projects must evaluate and address the proposed site’s aesthetic impact on the surrounding landscape.

- a. Good sites have one or more of the following characteristics:
 - Roof-mounted systems;
 - Systems located in close proximity to existing larger scale, commercial, industrial or agricultural buildings;
 - Proximity to existing hedgerows or other topographical features that naturally screen the proposed array from view from at least two sides;
 - Reuse of former brownfields or otherwise impacted property.
- b. Poor Sites have one or more of the following characteristics:
 - No natural screening;
 - Topography that causes the arrays to be visible against the skyline from common vantage points like roads or neighborhoods;
 - A location in proximity to and interfering with a significant viewshed (significant viewsheds within Waterford include, but are not limited, to those identified in the Transportation section of this Plan.)
 - The removal of productive agricultural land from agricultural use
 - Sites that require public investment in transmission and distribution infrastructure in order to function properly.

B. **Mass and Scale:** The historical working landscape that defines Waterford currently and that the Town desires to preserve is dominated by viewsheds across open fields to wooded hillsides and views of distant mountain ranges. Rural structures like barns fit into the landscape because their scale and mass generally do not impact large tracts of otherwise open land. All commercial scale solar arrays shall also be limited in mass and scale, and/or have their mass and scale broken by screening, to fit in with the landscape. Commercial solar projects larger than ½ acre are larger than any other structure within the municipality of Waterford, cannot be adequately screened or mitigated to blend into the municipality’s landscape and are therefore prohibited.

Projects found to have poor siting characteristics pursuant to the standards contained in Section 1 above and/or projects larger than ½ acre in size violate the municipalities’ standards regarding orderly development.

2. Average person:

For the purposes of this plan, either the municipal legislative body or the planning commission (depending upon which body is selected by the legislative body to represent the municipality before the Public Service Board in any Section 248 hearing), shall be deemed to represent the voice of the “average person” with respect to the “Quechee Test” when evaluating the aesthetics of a proposed solar array.

3. Mitigation methods:

In addition to properly siting a project, solar developers must take the following action to mitigate all project sites:

- a. Locate the structures on the site to keep them from being “skylined” above the horizon from public and private vantage points;

- b. Shorter panels may be more appropriate in certain spaces than taller panels to keep the project lower on the landscape.
- c. At a minimum, all solar arrays must observe the setback requirements contained in Title 30, Section 248 (s). However, developers are encouraged to increase setbacks to at least those listed in Waterford’s Zoning Regulations within the Zoning District in which it lies;
- d. Use the existing topography, development or vegetation on the site to screen and/or break the mass of the array;
- e. In the absence of existing natural vegetation, the commercial development must be screened by native plantings beneficial to wildlife and pollinators that will grow to a sufficient height and depth to provide effective screening within a period of 5 years. Partial screening to break the mass of the site and to protect public and private views of the project may be appropriate;
- f. Practice a “good neighbor policy.” The siting of the array should be done in such a manner that the array creates no greater burden on neighboring property owners or public infrastructure than it does on the property on which it is sited. As an example, a landowner may not site an array on his or her property in a location calculated to diminish the visual impact of the array from his or her residence, but places the array immediately within their neighbor’s or the public’s viewshed. Locating a solar array in a manner designed to reduce impacts on neighbors or public viewsheds constitutes reasonable mitigation.
- g. Use black or earthtone materials (panels, supports fences) that blend into the landscape instead of metallic or other brighter colors).

4. Decommissioning and Restoration:

All projects shall be decommissioned at the end of their useful life and the property shall be restored to its pre-project condition. Developers of all projects 100 kW and greater shall provide the municipality with appropriate assurances to guarantee funding exists to decommission the project. In keeping with Waterford’s desire to retain our agricultural land base, a solar array’s useful life shall be deemed to be at the end of the initial contract for services with the power company.

Goals and Recommended Actions

1. Support the use of renewable energy in Town, while preserving scenic and agricultural resources

- Investigate the establishment of a local PACE program as a way to encourage the installation of residential-scale renewable energy
- Develop local regulations that establish screening requirements, as provided by Act 56, to be applied to ground-mounted solar plants as one means of protecting scenic views.
- Use renewable energy systems for any newly constructed Town buildings.

2. Conserve forested lands in Town as a valuable renewable fuel source

- Provide education to property owners about the tax benefits of enrollment of forested land in the Current Use program, and the importance of forest management plans to ensure the continued existence of wood as a local fuel source
- Develop standards for density-based zoning regulations that require preservation of important blocks of forested lands while allowing smaller lot sizes.

VII. ECONOMIC DEVELOPMENT

As per State statute, a municipal plan shall contain an economic development element that “describes present economic conditions and the location, type, and scale of desired economic development, and identifies polices, projects and programs necessary to foster economic growth.”

Existing Conditions

Regional context:

A report commissioned by the Northeastern Vermont Development Association (NVDA) in 2011 entitled, *NVDA-Strategic Industries in the Northeast Kingdom*, provides background on employment trends, regional industries of economic significance, as well as a detailed analysis of key strategic industries. The complete report is available on NVDA’s web site:

http://www.nvda.net/files/NVDA-StrategicIndustries_Report_June_2011_WOR.pdf

According to the Vermont Department of Labor’s *Economic and Demographic Profile Series 2015*, the three counties of the Northeast Kingdom had an estimated labor force of 32,300 in 2014, which accounts for 9.3% of the state workforce. The region’s covered employment, which includes all private and public ownerships but doesn’t count all farm employment or self-employment, totals 22,500 and accounts for 7.4% of the statewide covered employment. “Covered” employment is the count of jobs that are covered by the Vermont or Federal Unemployment Compensation Law.

Although Vermont as a whole has seen a significant shift from a “goods-producing” to a “service-providing” economy, this trend is not as pronounced in the Northeast Kingdom. Statewide in 2014, goods-producing jobs made up 16.3% of all jobs in the State, while goods-producing jobs accounted for 19.8%, 21% and 22% of jobs in Caledonia, Orleans and Essex counties respectively. The goods-producing industries include natural resource sectors of agriculture, forestry, and mining, as well as construction and manufacturing. Service-providing sectors include transportation and warehousing, utilities and information; finance and insurance; real estate and rental; educational services; health care and social assistance; professional and technical services; management of companies, administrative and waste services; arts, entertainment, and recreation; accommodation and food services; wholesale and retail trade; and government.

Although the state economy gained 11,402 jobs (3.9% increase) between 2010 and 2014, this gain was not evenly distributed among the counties. Caledonia County experienced a net job loss of 0.5%, Essex County experienced a 7.8% job loss, and Orleans County saw one of the greatest gains in the state at 8.6%. It is possible that some of this growth in Orleans could be attributed to the EB-5 investments in the region.

A report entitled *Impacts of Development Activities in the Northeast Kingdom*, prepared by the Vermont Agency of Commerce and Community Development in December 2014, looks at changes in income, population, housing units, and school enrollment that occurred after the

construction of EB-5 funded developments in the region, and provides some insight regarding how future developments may impact the region. That report is available here: <http://legislature.vermont.gov/assets/Legislative-Reports/Final-report-docx.pdf>

Northeast Kingdom Employers

The U.S. Census Bureau County Business Patterns provides annual statistics for businesses with paid employees. (Data for 2013 were released in April 2015.) The series excludes data on self-employed individuals, employees of private households, railroad employees, agricultural production employees, and most government employees. In 2013, there were 54 establishments with 50 or more paid employees located in the Northeast Kingdom (26 in Caledonia County, 27 in Orleans County, and one in Essex County.)

The greatest number of establishments in the Northeast Kingdom (over 60% of the total) employ four or fewer employees.

Healthcare and education services have become significant employers for the region. In Caledonia County, the Northeastern Vermont Regional Hospital in St. Johnsbury, Lyndon State College, Lyndon Institute and St. Johnsbury Academy are among the larger employers in these categories. Education and Health care services accounted for 2,326 jobs in 2014 according to the Vermont Department of Labor.

Self-Employment

Self-employment in the Northeast Kingdom represents a significant share of total employment, compared to the rest of Vermont. In 2008, self-employed workers represented about 17.1 percent of the regional workforce, compared to 14.1 percent of the state workforce. The majority of the self-employed are engaged in construction; retail trade; professional and technical services; forestry, fishing, and agricultural support services; healthcare and social assistance, and other services.

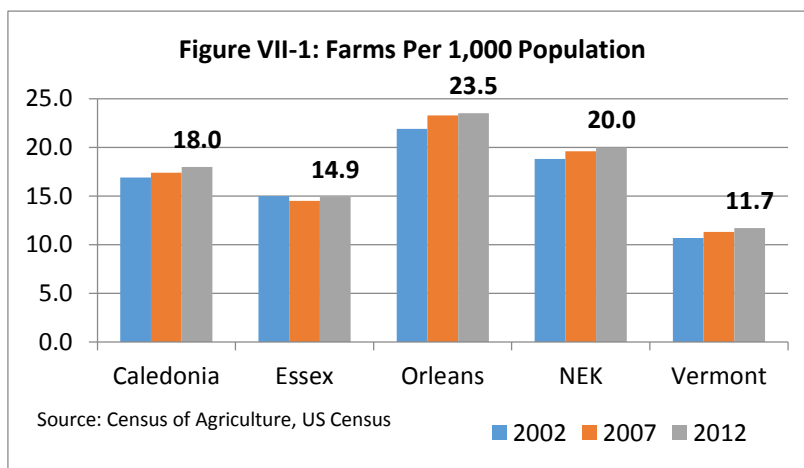
The Northeast Kingdom and Vermont saw a decrease in self-employment from 2008 to 2013. In the region, the biggest losses came from construction, transportation and warehousing, and information sectors. These losses were partially offset by significant gains in manufacturing. Much of this growth came from non-durable goods manufacturing, and specifically, food manufacturing. As of 2013 the Northeast Kingdom region had 85 “non-employers” (unincorporated businesses or sole proprietorships) in food manufacturing, representing \$1.65 million in receipts. The number of non-employer food manufacturers in Caledonia County and Orleans County more than doubled from 2008 to 2013.

Agricultural Economy

One of the State’s 14 planning goals articulated in statute is “To encourage and strengthen agriculture and forest industries.” Policies under this goal are:

- Strategies to protect long-term viability of agricultural and forest lands should be encouraged and should include maintaining low overall density
- The manufacture and marketing of value-added agricultural and forest products should be encouraged.
- The use of locally-grown food products should be encouraged.
- Sound forest and agricultural management practices should be encouraged
- Public investment should be planned so as to minimize development pressure on agricultural and forest land.

The land-based economy is a critical part of the Northeast Kingdom’s traditional landscape that preserves open spaces and enhances the region’s scenic beauty.



The United States Department of Agriculture (USDA) conducts a Census of Agriculture every five years. According to the 2012 Census of Agriculture, there are 1,291 farms in the Northeast Kingdom, which represents an 8.9% increase from 2002. The region has more farms per population than statewide.

The total market value of all Northeast Kingdom agricultural products (crops and livestock) grew to \$148,204,000 in 2012, an increase of 6.2% since 2007. While the value of livestock sales in the Northeast Kingdom dropped by 4.6% from 2007 to 2012, it still accounted for the majority (83%) of the value of all agricultural sales in the region. Livestock sales include all animals and their products (meat, eggs, milk, etc.). Dairy remains a top commodity in the Northeast Kingdom. The top two livestock products by value of sales in the region according to the 2012 census were “milk from cows,” and “cattle and calves,” which together accounted for about 98% of all livestock product sales. The value of crop sales in the Northeast Kingdom more than doubled from 2007 to 2012. While crop sales only accounted for 7.4% of Northeast Kingdom total agricultural sales in 2007, it represented 17% in 2012. Crops include nursery and greenhouse crops.

The forest industry is also an integral part of the region's economic and social identity, and logging continues to be a locally important economic activity. These include jobs in logging and trucking, wood products and furniture manufacturing, paper manufacturing, wood energy, maple syrup and Christmas trees.



East Village Road, Waterford

In 2012, Act 142 created the Working Lands Enterprise Fund and the Working Lands Enterprise Board (WLEB). The WLEB is made up of State agencies and private sector members in the supply chains of agriculture and forestry. The forestry subcommittee of the WLEB is currently developing an “asset

map” that will include information on the location and scale of facilities and businesses within the primary and secondary forestry industry, and is undertaking a Forest Industry Systems analysis that will help identify strategies to strengthen the forestry and wood products industry. The WLEB also provides grants to business owners and service providers to fund forestry and agriculture projects.

Other industry support groups and programs include the Vermont Wood Manufacturer’s Association, Vermont Technical College, the Vermont Community College System, the University of Vermont’s Forestry Department, and the Small Business Development Center Program.

Local Conditions

Labor Market Area

Waterford is part of the St. Johnsbury Labor Market Area, which is characterized as a “Small Labor Market Area” by the Vermont Department of Labor. Labor Market Areas (LMA) are determined by combining population data and commuting patterns, and do not necessarily adhere to county boundaries. The St. Johnsbury LMA for 2015 includes a total of 19 towns: the Caledonia County Towns of Barnet, Burke, Danville, Kirby, Lyndon, Newark, Peacham, Sheffield, St. Johnsbury, Stannard, Sutton, Walden, Waterford, and Wheelock; the Essex County towns of Concord, East Haven, Granby and Victory; and the Washington County Town of Cabot.

The September 2015 data for the St. Johnsbury LMA published by the Vermont Department of Labor indicates a labor force of 13,550, employment of 12,900, with an unemployment rate of

4.8%. The job count in the LMA in 2014 was 10,287, with a total number of 895 establishments. Of these, 805 were in private ownership and 90 were government establishments (including federal, state and local). 81.5% of all jobs in the LMA were in the private sector, and 18.5% were in government.

Of the establishments in the St. Johnsbury LMA in private ownership, 176 were engaged in goods-producing and 629 were in service-providing. There were 18 establishments engaged in non-durable goods manufacturing, accounting for 747 jobs.

The average annual wage for 2014 was \$38,114 for all jobs. The average wage in the goods-producing domain was \$45,466, and in the service-providing domain was \$35,231. The average wage for government sector jobs was \$38,881.

Inflow and Outflow

The Vermont Department of Labor provides for each County a “Home Destination Report” and a “Work Destination Report,” the most recent data being from 2012. The former indicates the place of residence of individuals who work in Caledonia County, and the latter provides data on the place of work of Caledonia residents. Probably due to low numbers of workers and jobs in Waterford, the Town is not called out separately as a destination or an origination point in these reports. The reports show that only 47.8% of residents worked in Caledonia County in 2012, the rest commuting to jobs outside the County and State.

The Longitudinal Employer-Household Dynamics (LEHD) program at the Center for Economic Studies at the U.S. Census Bureau provides origin–destination information at the town level. The graphic below is based on 2002-2013 LEHD Origin Destination Employment Statistics (LODES). It shows for 2013 the number of workers who were both employed and lived in Waterford (circular arrow), those employed in Waterford but living outside (the dark green arrow), and those workers who lived in Waterford but were employed outside (light green arrow). The arrows don’t indicate directionality. The graphic illustrates Waterford’s role as a “bedroom community” for other employment destinations.

Figure VII-2 Inflow/Outflow Counts of all Jobs for Waterford in 2012



Source: U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics (Beginning of Quarter Employment, 2nd Quarter of 2002-2011).

Local Work Force, Income and Type of Employment

The American Community Survey 5 year estimates (2009-2013) estimated the Waterford population age 16 and over to be 1,111, and estimated the civilian employed population age 16 and over to be 797. About 83% of the Waterford labor force worked in Vermont, and about 70% worked in Caledonia County. About 94.4% of workers drove an automobile to work, and about 5.1% worked at home, with the remainder walking to work (0.5%).

Table VII-2 Waterford Labor Force Employment by Industry		
Industry	# of workers	% of workers
<i>Civilian employed population 16 years and over</i>	797	100%
Agriculture, forestry, fishing and hunting and mining	11	1.4
Construction	62	7.8
Manufacturing	81	10.2
Wholesale trade	56	7.0
Retail Trade	158	19.8
Transportation and warehousing, and utilities	30	3.8
Information	3	0.4
Finance and insurance, and real estate and rental and leasing	45	5.6
Professional, scientific, and management, and administrative and waste management services	40	5.0
Educational services, and health care and social assistance	216	27.1
Arts, entertainment, and recreation, and accommodation and food services	30	3.8
Other services, except public administration	42	5.3
Public administration	23	2.9
Source: U.S. Census Bureau, 2009-2013 American Community Survey, Table DP03		

As shown on the table above, the largest percentage of Waterford residents in the workforce are employed in education, health care and social services (27.1%). The next highest industry category employing local residents is retail trade (19.8%), with manufacturing in third place (10.2%). Only 1.4% of the local labor force is employed in the category “agriculture, forestry, fishing, hunting and mining.”

The median earnings for the employed population 16 years and older was \$34,338. The median household income in Waterford was estimated at \$64,653 and median family income was \$79,250.

Existing Commercial and Industrial Uses in Waterford

Commercial/Industrial uses in town include the hydroelectric dam operated by TransCanada, the Pike Company rock quarry and asphalt plant, Matthews Construction Co., Eddies’ Bakery, Fenoff Excavating, Calco, Inc. concrete plant, and numerous home-based industries. The Rabbit Hill Inn includes the commercial use of lodging, restaurant and retail sales in the gift shop.

Existing land use regulations in Waterford provide for three zoning districts: Industrial Commercial, Village District, and Rural Residential. The Industrial Commercial zoning district

is located in three locations in town: an area of existing commercial development on Duck Pond Road, a small area on the west side of State Route 5, and a location currently in agricultural use adjacent to the interchange of Route 18 with Interstate 93. The Industrial Commercial district does not permit any commercial or industrial uses, or any primary residential use, as of right. A variety of commercial and industrial uses are permitted as conditional uses in all three zoning districts.

Planning Considerations for Economic Growth

Relevant overarching goals that have been carried forward from previous Waterford Town Plans are to “remain a rural residential community in character and nature,” to “retain and promote agriculture and forestry as the prime economic base within the town,” to “promote small clean industry on a very selective basis,” and to “protect our natural and economic resources.”



Commercial and manufacturing uses related to agriculture and forestry is a way to realize economic growth in town that is in keeping with the above-stated goals.

As noted in the Land Use section of the Plan, a large proportion of the land area in Waterford that is not covered by water is forested. As of January 2015, 5,511 acres of forest land were enrolled in Vermont’s Use Value Appraisal program (also known as Current Use), which requires that these areas be managed in accordance with a forest management plan approved by the State.

A total of 609 acres in Waterford contain federally-rated Prime Agricultural Soils, and 2,971 acres contain Important Statewide Agricultural soils. According to the 2015 Grand List data for Waterford, 16 properties were classified as a “farm” and 702 acres were enrolled in the Current Use program as agricultural land.

Although the above-stated goals still reflect the desires of Town planners and residents, if residential growth in Waterford continues at a similar pace as has occurred over the last ten years, the result could be fragmentation and loss of important agricultural and forest resource lands. The minimum lot area town wide is currently set at two acres.

The Waterford Community Survey that was conducted in the Spring of 2015 gathered community input on features important to a high quality of life in Waterford, opinions on appropriate residential density, and desirability of new commercial development. The majority of residents did not see a need for more commercial uses in town, although there was strong support for new agricultural value-added manufacturing enterprises, such as a bakeries, cheese making facilities, and micro-breweries. Rural setting was rated highly as contributing to a high quality of life. A majority of respondents to the survey also favored reducing the overall permitted residential density in town.

When asked about the most effective ways to protect against the loss of agricultural land, 50% of respondents identified educational outreach programs as most useful, and about 43% identified reduction of permitted residential densities as an effective approach.

One strategy that can help realize the goals of local economic growth that preserves Waterford's rural setting in town is to promote the development of agricultural enterprises. Another is to amend the towns land use regulations (zoning and subdivision regulations) to recognize the value of retaining contiguous blocks of forest lands and agricultural lands.

The location of important agricultural soils can be one of the factors that directs appropriate locations for an agricultural overlay district, in which district lower residential densities and larger lot sizes would occur.

Goals and Action Steps

1. Retain and promote agriculture and forest-based industry as the prime economic base within the town.

- Provide assistance to residents seeking to establish on-farm enterprises, through the use of land use regulations or incentives.
- Provide support to farmers interested in diversification and/or product development. Provide information on grants and low-interest loans for value-adding businesses and diversification.
- Form a local agricultural committee to serve as an information clearinghouse and provide marketing support for local farm-based and forest-based businesses
- Better define the definitions of home occupation to accommodate the type of farm-based businesses the community would like to see

2. Achieve Town-wide broadband coverage to support local farm and forest-based businesses, and to support telecommuting and home-based businesses.

- Contact the Connectivity Division at the Vermont Department of Public Service to provide information on areas in Town underserved by broadband and to help identify solutions that will best resolve connectivity problems

3. Maintain enough forest land to support wood-related industries, retain the town's natural beauty, promote recreational usage, and maintain a healthy, sustainable forest based economy.

- Encourage the use of “planned unit development” coupled with low density zoning and other tools to preserve agricultural and forest resources.
- Educate landowners to enroll productive forestland and agricultural land in the “current use” program.

VIII. FLOOD RESILIENCE

Introduction

State statute directs that a municipal plan shall include a flood resilience plan that:

- Identifies flood hazard and fluvial erosion hazard areas based on State river corridor maps, and designates those areas to be protected, including floodplains, river corridors, land adjacent to streams, wetlands, and upland forests, to reduce the risk of flood damage to infrastructure and improved property;
- Recommends polices and strategies to protect the areas in flood and fluvial erosion hazard areas and to mitigate risks to public safety, critical infrastructure, historic structures, and municipal investments.

Existing Conditions

The Town of Waterford is located in the Upper Connecticut River and Passumpsic River watersheds. Approximately 4% of the Town's area is covered by water.

The Passumpsic River cuts across the northwestern corner of Town, and the Connecticut River extends along the southern boundary of the Town. A small section of the Moose River cuts across the northern edge of Waterford, near its boundary with East St. Johnsbury.

Other named surface waters and watercourses in Waterford include Chandler Brook, the Comerford reservoir, Duck Pond and Duck Pond Brook, Mad Brook, Moore reservoir, Simpson Brook, Stiles Brook, and Stockwell Brook.

The locations of wetlands are depicted on the "Natural Resources Constraints" included in this Plan.

FEMA-mapped Special Flood Hazard Areas

Areas of Waterford have been mapped by the Federal Emergency Management Agency to depict areas of special flood hazard. These areas are depicted on the Flood Insurance Rate Map (FIRM) for the town. The Town has been a member of the National Flood Insurance Program since 1985. The Town has flood hazard regulations that regulate development on land that is within the area of special flood hazard area, as depicted on the FIRM. The Town's flood hazard regulations, which are incorporated in the Town's zoning bylaw, were last updated in 2013. Membership in the NFIP enables property owners in the FEMA-mapped flood hazard area to obtain flood insurance.

River Corridors

The Agency of Natural Resources has released a State-wide River Corridor map which depicts areas subject to fluvial erosion. These areas are depicted on the River Corridor Map contained in the Plan. In many cases, the River Corridors coincide with the areas mapped on the FIRM. However, the river corridor maps are intended to depict areas at risk of fluvial erosion do to the

dynamic movement of water in rivers and streams, whereas the FIRM depicts areas subject to inundation. For that reason, areas like wetlands that are depicted on the FIRM will not be mapped on the River Corridors. Areas that are currently within the Statewide River Corridors in Waterford are not subject to the local flood hazard regulations unless they coincide with the FIRM areas.

Infrastructure and Buildings at Risk

The Town of Waterford completed a draft Local Hazard Mitigation Plan (LHMP) in 2015. Once approved by FEMA, the Town Selectboard will adopt the LHMP. The LHMP identifies the buildings and structures within the Special Flood Hazard Area mapped by FEMA, and contains a Road Erosion Inventory.

ERAF

The Emergency Relief Assistance Fund (ERAF) helps Vermont municipalities repair damaged infrastructure after a presidentially-declared disaster. ERAF funding typically covers half the required 25% non-federal match for approved projects.

As of October 23, 2014 Towns needed to have four flood hazard mitigation measures in place in order to maintain level state funding in the event of such a disaster:

- 1) Adopt Flood Hazard Regulations that meet minimum standards for enrollment in the National Flood Insurance Program;
- 2) Adopt the most recent Agency of Transportation Road and Bridge Standards;
- 3) Adopt a Local Emergency Operations Plan (LEOP); and
- 4) Update and adopt a Local Hazard Mitigation Plan and submit to FEMA for approval.

The Town of Waterford has achieved the above four measures. A fifth measure, regulating development within river corridors according to state model ordinances, would further increase the amount of funding provided by the State under ERAF.

[Planning Considerations](#)

Local Hazard Mitigation Plan

Once the LHMP has received approval by FEMA and has been adopted by the Town Selectboard, the proposed mitigation measures related to flood hazards contained in that plan should be incorporated in this Town Plan by reference.

Vegetated buffer areas and coverage limitations

Maintaining natural vegetation and limiting impervious surfaces in areas close to streams helps prevent potential sedimentation of streams and water bodies and reduce stormwater runoff that could contribute to downstream flooding. Therefore, in addition to the recommended avoidance of areas within the statewide river corridors, it is recommended that a setback of 50 to 100 feet be maintained from of smaller streams.

Upland and wetland areas

The management of upland forested areas plays an important role in flood hazard management. As these areas are cleared and become developed, storm water, instead of infiltrating naturally into the soil, quickly runs off hard surfaces picking up pollution and carrying it to waterways. Increased flows during storms can destabilize stream channels and adversely affect water quality. Limiting the extent of disturbance and development of impervious surfaces on upland slopes helps to reduce the amount of storm water runoff, and helps to avoid overwhelming existing stormwater infrastructure, including roadside ditches and culverts. Avoiding steep slopes greater than 20% when clearing and developing land, and requiring that stormwater runoff from new development be managed on-site will also help mitigate future flood hazards.

Wetlands provide an important floodwater storage function, storing stormwater runoff and flood waters that overflow riverbanks. As flood waters recede, the water is released slowly from the wetland soils. By holding back some of the flood waters and slowing the rate that water reenters the stream channel, wetlands can reduce the severity of downstream flooding and erosion.

The State of Vermont regulates activities in and adjacent to wetlands in accordance with the Vermont Wetland Rules. State permits are necessary for activities in or within 100 feet of Class I wetlands, and within 50 feet of Class II wetlands. A permit can only be issued if it is determined that the use will have no undue adverse impact on protected functions, unless such impacts are mitigated.

Protection of steep slopes and wetland areas can also be achieved through securing conservation easements in critical locations and by encouraging enrollment of managed forested areas in the current use program.

Tactical Basin Plan

The Tactical Basin Plan for the Upper Connecticut and Passumpsic River watersheds is a plan prepared by the Watershed Management Division of the Agency of Natural Resources. It can be viewed online here: http://www.vtwaterquality.org/mapp/docs/mapp_b15-16tbp.pdf.

The Tactical Basin Plan contains the following proposed strategies that are relevant to flood hazard planning in Waterford:

- Improve river corridor and floodplain protections for the Passumpsic, Millers Run, East and West Branch Passumpsic River in town zoning bylaws to allow these streams to develop new floodplains and reduce flood damage.
- Contact landowners in priority areas with important floodplain protection or restoration opportunities to encourage participation in conservation and restoration programs.
- Complete outreach to farmers to improve nitrogen management on farms

Goals and Action Steps

1. Mitigate flood hazards and maintain good water quality by undertaking restoration projects, reducing stormwater runoff from new development, and assuring long-term protection of the River Corridor from incompatible development and uses.

- Create a capital improvement plan to address the projects identified for Waterford in the LHMP, beginning with the highest priority projects.
- Amend the Flood Hazard regulations to regulate development within the River Corridor Areas mapped by DEC, in order to mitigate flood hazard risks and protect investments made in restoration projects, and receive a higher amount of funding under ERAF
- Consider establishing impervious coverage limitations as part of the town's zoning district standards to limit stormwater runoff that can contribute to flooding and degrade water quality.
- Include Planned Unit Development provisions in the Town's zoning bylaws to better enable developments that have reduced clearing and impervious coverage, and enable flexibility in siting developments outside of floodplains and river corridors.
- Hold a flood hazard area education event to inform local residents.

IX. LAND USE

Introduction

The land use plan represents a broad policy statement of the desired future land uses in Waterford and as such is a summation of all the other surveys, inventories, analyses, and categorical plans which have preceded it. It is also based on surveys of existing conditions and trends and capabilities relative to land use. It is intended to work as a guide to public officials and private citizens in coordinating the future development of the town. It is the document upon which the Town's Zoning Bylaw is based.

24 VSA Section 4382 directs that the Land Use section of the municipal plan shall consist of:

“...a map and statement of present and prospective land uses, indicating those areas proposed for forests, recreation, agriculture..., residence, commerce, industry, public, and semi-public uses and open spaces reserved for flood plain, wetland protection, or other conservation purposes; and setting forth the present and prospective location, amount, intensity, and character of such land uses and the appropriate timing or sequence of land development activities in relation to the provision of necessary community facilities and service.”

Existing Conditions

Existing Land Use

Land uses may be classified into seven general categories: village residential, rural residential (including permanent homes, seasonal and second home residential, and existing subdivisions), industrial, commercial, recreational, agricultural and forested lands.

Residential Uses

Town-wide, the overall residential density is about one dwelling per 40 acres. However, there are a clusters of residential subdivisions on smaller lots (i.e, 5 acres and smaller) in various locations in town, including the following places:

- Hillside Lane off Simpson Brook Road (Meadowwood);
- Daniels Farm Road;
- Remick Road;
- Route 18 and Old Country Road north of Lawrence Road;
- development of seasonal and year-round homes on Copenhagen and Lower Waterford Roads (Waterford Springs)
- East Village Road, in the northeastern corner of town, (this cluster of residences and small farms are connected to the historic development of East St. Johnsbury along Route 2),
- Lower Waterford Village, near the intersection of Lower Waterford Road and Route 18.

Village Residential

Lower Waterford (White Village) is the only remaining historic village type concentration within the town. Most of the surviving structures were constructed during the early 1800's and remain much as they were then. It was formerly a full scale, self-sufficient village, but most industrial uses have completely vanished, and the only remaining commercial use is the historic colonial Rabbit Hill Inn. The rest of the buildings and surrounding lands are either for public uses or private residences. The White Village has been preserved due to the Village's population decline and the efforts of a former owner of the Rabbit Hill Inn who bought and restored all but two of the houses in the Village area during the 1930's. The result is an historic and classic Vermont scene, which is much photographed and frequented by many vacationers and tourists. It is a fine example of functional historic and scenic preservation as an appropriate land use.

Rural Residential

Other than the concentrations noted above, most houses in the town are on large lots and with a good deal of open space around them thus lending to the rural character of the town. See the housing section for information on trends in residential development.

Industrial and Commercial Use of Land

Present industries in the town include a hydroelectric dam on the Connecticut River operated by TransCanada, the Pike Company asphalt plant and rock quarry (which provides gravel for use on Town roads), Matthews Construction Co. and Eddie's Bakery on Duck Pond Road; Fenoff Excavating on Duck Pond Road, and Calco, Inc., a precast concrete plant and construction operation located between Route 18 and Duck Pond Road. There are also numerous home industries.

The Rabbit Hill Inn, Restaurant and Gift Shop at Lower Waterford consists of a group of 18th and 19th century buildings at the corner of Route 18 and Lower Waterford Road.

The hydroelectric plant and transmission lines, which cross Waterford and utilize a small amount of land in a linear fashion, generate revenue for the town. There are cable and electric transmission lines throughout the town, which add to the tax base. Another utility, St. Johnsbury's water supply, comprises Stiles Pond and 1,132 acres of its watershed.

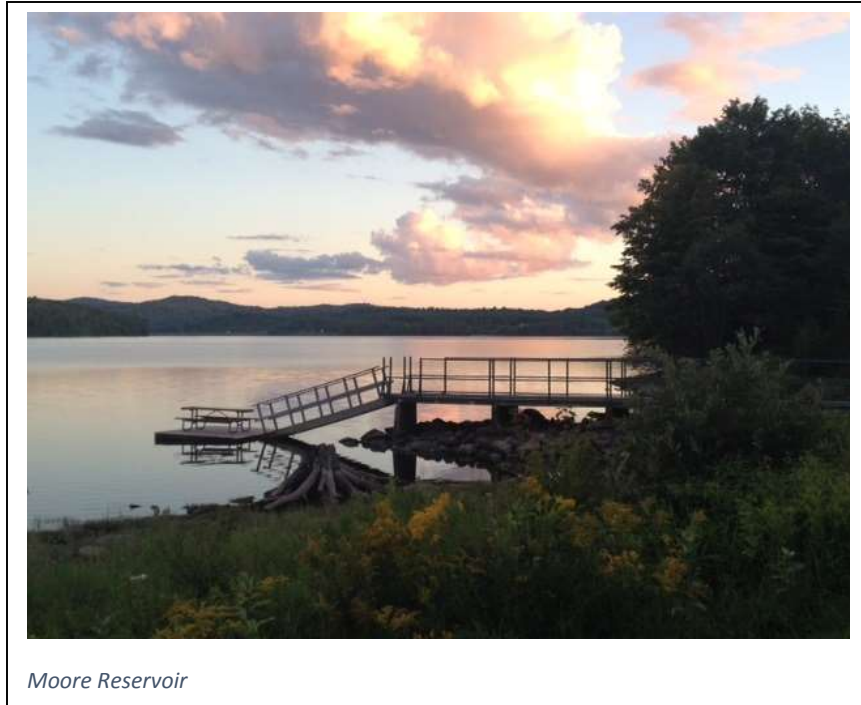
In 2014 National Grid, which owns and operates the transmission line between the Moore and Comerford Hydroelectric Stations, announced plans to relocate the existing lines from the current right of way corridor in Vermont to an existing utility corridor on the New Hampshire side of the Connecticut River.

Recreational uses

Town-owned recreational facilities consist of the Waterford School playground and a closed loop trail adjacent to the school. Class 4 Town Roads are also a potential recreational resource for

biking, hiking and cross-country skiing. The Vermont Association of Snow Travelers maintains trails across private property in Waterford.

Private community recreational facilities include a private playground and ballfields on the property of the Union Baptist Church, on Route 5; and tennis courts, beach access and a clubhouse that is part of the Waterford Springs residential development adjacent to the Comerford Reservoir. Although there is no town-owned land that provides access to the Connecticut River, TransCanada



Moore Reservoir

maintains land along the Connecticut River for passive recreational use by the public. There is a public boat launch and fishing pier on the Moore Reservoir, (formed by the Moore hydroelectric dam on the Connecticut River), and a picnic area located on TransCanada land at the end of Old County Road.

For the past eight years an annual fishing tournament has been held on the Moore Reservoir, sponsored by TransCanada.

The Passumpsic and Connecticut Rivers are both

popular for fishing and boating. Launch points and portage locations along the Connecticut River have been mapped by the Appalachian Mountain Club in its *River Guide*, and by the Connecticut River Paddlers' Trail (<http://www.connecticutriverpaddlerstrail.org/>).

The Moose River is also used for fishing, canoeing and kayaking. The stretch from the Victory Basin Wildlife Management Area to Fred Mold Park in St. Johnsbury features both flat water and Class III rapids.

Since Stiles Pond, located in the northeast of Waterford, is the public water source for the Town of St. Johnsbury, recreational access is somewhat restricted. The Town of St. Johnsbury's water treatment plant is located on the north side of the Pond, and the Town of St. Johnsbury owns the land surrounding the Pond. However, legal public access to Stiles Pond exists along State Highway 18, which is located along its eastern edge, and the spot is used for fishing.

Agricultural land uses

According to a GIS analysis, here are 609 acres of land containing prime agricultural soils, and 2,971 acres containing important statewide agricultural soils. (See Map 4, “Soils Constraints”)

Open land used for agriculture makes up a lesser proportion of land area than forest in Waterford, although it far exceeds the amount of developed land (see Map 2 “Land Cover”). According to the 2015 Grand List for Waterford, there were 16 properties classified as a “farm,” and 702 acres of land in Waterford were enrolled in the Current Use program as agricultural land. The requirements for enrolling agricultural land in current use is similar to that for forested land, although smaller parcels can be enrolled if the land produces “farm crops” that exceed \$2,000 per year in sales, or is leased to a “farmer” as defined in State statute. See the Economic Development section of this Plan for a further discussion of the economic importance of agricultural lands.

Forested areas and topography

According to a geographic information system (GIS) analysis of land cover, a large proportion of the land area in Town is forested (see Map 2 “Land Cover”).

As of January 2015, 5,511 acres of forest land in Waterford were enrolled in Vermont’s Use Value Appraisal program (a.k.a “Land Use” or “Current Use”). Forest land parcels enrolled in Current Use must contain at least 25 acres and must be managed according to a forest plan approved by the Vermont Department of Forests, Parks and Recreation. House sites and land under other private or commercial developments are not eligible. Forest Management Plans must be updated and re-approved every ten years.



The Vermont Agency of Natural Resources has created an interactive map called the Vermont Natural Resources Atlas. The image above was generated by the NRA and depicts blocks of contiguous forested area in town that have been rated as possessing high habitat value. (The interactive map can be viewed at <http://anrmaps.vermont.gov/websites/anra/>).

Much of the areas in town that are forested also contain steep slopes. About 35% of the land area in town contain slopes of 20% or greater (see map 3, “Natural Resource Constraints”). The highest peak in Waterford is Fuller Hill, at 2,000 feet located in the eastern part of the town.

Water Resources

The Town of Waterford is located in the Upper Connecticut River and Passumpsic River watersheds. Based on a GIS assessment, approximately 4% of the Town’s area is covered by water.

The Passumpsic River cuts across the northwestern corner of Town, and the Connecticut River extends along the southern boundary of the Town. A small section of the Moose River cuts across the northern edge of Waterford, near its boundary with East St. Johnsbury.

Other named surface waters and watercourses in Waterford include Chandler Brook, the Comerford reservoir, Duck Pond and Duck Pond Brook, Mad Brook, Moore reservoir, Simpson Brook, Stiles Brook, and Stockwell Brook.

The locations of wetlands are depicted on Map 3, “Natural Resources Constraints.”

Stiles Pond and its tributaries, located in the northeastern section of Waterford, are classified as Class A(2) waters, since it serves as the public water supply for the Town of St. Johnsbury. However, all development in Waterford relies on groundwater for its source of potable water.

As noted in previous Town Plans, a 1967 map published by the State of Vermont indicated significant ground water potential along the Connecticut and Passumpsic Rivers and Chandler and Stiles Brooks. In 1999, the surficial geology of the western portion of Waterford was mapped (Springston and Haselton), although this did not include groundwater information. In 2010, the Vermont Geological Survey produced a map depicting reported well yields in bedrock wells at the County level.

Conserved Land

1,152 acres including the Stiles Pond water treatment facility and other lands within the Source Protection Area for Stiles Pond are owned by the Town of St. Johnsbury.

The Vermont Land Trust (VLT) holds an easement on 486 acres of woodland in private ownership that is located several hundred feet from the confluence of Chandler Brook and the Connecticut River at Comerford Reservoir. The land also encompasses the summit and slopes of Chamberlain Mountain. The VLT also holds lands adjacent to a short stretch of the Moose River in the northwest

corner of town, and along two sections of the Passumpsic River in the western corner of town. (See Map 1, "Base Map")

There is common open space that is part of the Waterford Springs residential subdivision, but this is not open to the public.

Public and Institutional Use of Land

Lands and facilities devoted to public or institutional uses in Waterford consist of the Town Hall and Library on Lower Waterford Road, the Congregational Church on Lower Waterford Road, the Fire House and Town Garage on Duck Pond Road, the public elementary school on Duck Pond Road, the Baptist Church on Route 5, and nine cemeteries: Riverside, Lower Waterford, Passumpsic, Stiles, Charles Hill, Powers-Wheeler, West Waterford, Adams-Babcock, and Cushman.



See the Community Facilities section of the Plan for a detailed discussion of public buildings.

[Existing Land Use Regulations](#)

There are currently three zoning districts in Waterford: Village District, Rural Residential and Industrial Commercial. Minimum lot size and frontage requirements are the same in all districts: 2 acre minimum lot size and 200 feet of required frontage. The front, side and rear setbacks are the same in the Industrial Commercial and Rural Residential district (50 foot front yard and 35 feet for side and rear yards). The Village District requires a front yard setback of 35 feet, and side and rear yards of 25 feet. Lot coverage (coverage of lots by impervious surfaces) is not regulated by the zoning ordinance.

The vast majority of land area in town is zoned Rural Residential. The Village District consists of an area of a circle with a radius of .5 mile, the center being the intersection of Maple Street and Lower Waterford Road.

There are three areas zoned “industrial commercial” in town: one is near the interchange of Route 18 and Interstate 93 at the northwest boundary of Waterford with St. Johnsbury; one is located on Duck Pond Road, and includes the area owned by Pike Industries; and one is located on the northwest side of State Route 5.

The Town also has subdivision regulations, and while there are general statements regarding the protection of natural features and provision of open space, they are unspecific.

There are currently no provisions in the town’s land use regulations for planned unit developments.

Planning Considerations for Future Land Use

Preservation of Water Resources and Flood Resilience:

The Tactical Basin Plan for the Upper Connecticut River and Passumpsic River watersheds, prepared by the Vermont Agency of Natural Resources, provides guidance for the protection and enhancement of water resources for public use and enjoyment, and to protect public health and safety. Appendix A of the Tactical Basin Plan identifies existing uses of water resources, including swimming, boating, fishing, and water supply. The Tactical Basin Plan can be found online here: http://www.vtwaterquality.org/mapp/docs/mapp_b15-16tbp.pdf.

The quality and quantity of water resources must be very carefully considered when development is contemplated and since most all (surface and subsurface) water sources and streams in Waterford are presently in near pristine quality (except portions of the Connecticut and Passumpsic Rivers), it is important to protect this valuable resource from pollution. Potential public and/or commercial and industrial water supplies deserve special attention as do water recharge areas.

To address negative impacts on water quality that can result from the clearing and development of shorelines, the State enacted the Vermont Shoreland Protection Act in 2014. The provisions of this Act require property owners to obtain a state permit for most development and clearing activities within 250 feet of the shores of lakes that are 10 acres or larger in size. Water bodies in Waterford that are subject to the State Act are Stiles Pond, Duck Pond, Comerford Reservoir, and Moore Reservoir.

Current Use Program

The program is a way to support agricultural and forestry uses as an economically profitable use of land. While enrollment in the program does not place a permanent conservation easement on the land, it does help discourage land speculation in response to residential development pressure. In places where land values are high and subject to development pressure, landowners can realize significant property tax savings by enrolling land in the current use program, since land is assessed at its use value rather than market value. Detailed information on this program can be provided by the Caledonia County Forester, or by visiting the website of the Vermont Department of Forests, Parks and Recreation: <http://fpr.vermont.gov/>.

Historic Resources

The State of Vermont Division of Historic Preservation conducted a state-wide survey in the late 1970s which identified 35 individual historic properties and one historic district containing 17 properties in the town of Waterford.

The “Lower Waterford Historic District” encompassed properties along Lower Waterford Road (identified as “Pucker Street”) and Maple Street in the area known as the “White Village” and the location has been recognized in Town Plans since the 1980s as being an important historic and scenic resource in town. The village contains a cluster of small lots on Lower Waterford Road near the intersection with Route 18 with a mix of residential, commercial and public uses. This area includes the Rabbit Hill Inn, the Congregational Church, the Davies Memorial Library, and the Town Hall. The statement of significance in the State’s historic survey notes:

The buildings within the Lower Waterford Historic District represent the village during the period it achieved significance as an important stop on the Burlington to Portland stage route. The stage route was established sometime around 1804 when the Littleton Turnpike Corporation linked with the Tenth New Hampshire Turnpike to complete the great Maine-New Hampshire-Vermont scheme to extend a turnpike from Lake Champlain to Portland, Maine...It was through the preservation efforts of Mr. and Mrs. John Wesley Davies that the historic quality of the village of Lower Waterford was preserved, so that today, as in 1867, the village retains the form it achieved during the period it was associated with the Burlington to Portland stage route, a route that opened the interior of Vermont to the seaboard.

The Lee Farm complex, located in the northern part of town off Route 18 on Town Highway #25, is listed on both the State and the National Register of Historic Places. It is significant as an example of rural vernacular Greek Revival style. The statement of significance notes:

The large farm complex alludes in its relative grandeur to the early days of what was then known as Waterford Hollow, when that village was formerly of considerable importance, having a church, store, hotel, oil-mills and saw mill and when the proximity of Stiles Pond rendered the locality a pleasant summer retreat.

The listing of a building or district on the State or National Registers of Historic Places does not prevent the property owner from making any changes to the property. It does afford heightened review of state or federally-funded or permitted projects that may impact historic resources. Design review standards for historic properties are only enacted at the municipal level, similar to zoning regulations.

In the late 1980s, the Waterford Planning Commission drafted a “Design Control District Report” outlining the boundaries of a proposed design control district in the historic Lower Waterford Village. The district was based on the Lower Waterford Historic District boundary identified by the Vermont Division of Historic Preservation. The goal of the design control

district was to preserve the visual and historic qualities of the Village; however, the proposed district was not adopted at that time by the Town.

Community Survey results

The community survey conducted by the Planning Commission in the Spring of 2015, indicated a strong preference for retaining Waterford's rural setting. While the term "rural" may mean different things to different people, 48% were in favor of reducing overall density, and 16% were undecided. When asked what an appropriate density would be, the most frequent response was one dwelling per 10 acres.

Population growth

(See housing section for data tables.) Population and housing growth has been significantly higher in Waterford than in Caledonia County as a whole.

Facilities and Services:

Waterford does not intend to install municipal water and sewer and therefore does not anticipate any major concentrations of populations or intensive land uses. Waterford does not expect to enlarge its education system or plant. Public health and safety services are expected to be maintained at current levels. Access is a consideration in some remote areas that should not be developed. Present community facilities are dispersed throughout the Town.

Planning Coordination:

The use of land in the Stiles Pond watershed is of importance to the Town of St. Johnsbury since this is the Town's public water supply. The extent of the Source Protection Area for St. Johnsbury's surface water supply is shown on the Base Map included with this Plan, and extends well beyond the land that is owned by the Town of St. Johnsbury. Cooperation between the two Towns is necessary to ensure continued protection of St. Johnsbury's water supply, and a mutually beneficial relationship.

Soils and Special Land Conditions

Most of the soils of Waterford are developed from glacial material and range from the Lyman/Windsor/Belgrade/Hartland series (10% of land area) in bottom lands, to Lyman/Marlow associations on the high ground (30% of land area) and Peacham/Muck association in several lowland areas (5%), with the majority of the land (45%) and virtually all the land which is truly developable without great difficulty lying on the gentle hillsides and having primarily Peru/Marlow and Paxton/Woodbridge associations. Detailed soils surveys have been developed for about 50% of Waterford and in areas that have generally been used for farming, thus, indicating the prime developable lands. Generally, the soils of Waterford are being used appropriately with no major conflicts or problems being created by misuse.

Based on the soils information available from the State's database (see Map 4) a large proportion of the land area in Waterford has soils limitations of some kind and to varying degrees, for subsoil sewage disposal and/or foundation construction for buildings. Soils information should be fully explored when development is considered. Many areas have soils which are 1) shallow to bedrock or hardpan, 2) excessively wet or poorly drained, 3) will not adequately absorb

moisture, and 4) unstable, or a combination of these. Proposed subdivision plans should provide adequate information to show that lots created can support subsurface wastewater disposal systems and are otherwise suitable for construction activities.

Other considerations should be given to special land conditions that may cause future problems if developed. These include: 1) lands within flood and fluvial erosion hazard areas, 2) lands which have an average slope of greater than 15%, and 3) lands which are at high elevations (over 1,500 feet) and are extremely fragile. Proposed subdivision of lands containing these features should demonstrate that there are adequate areas for building that avoid these special land conditions.

Recommended Categories of Land Use

Village Residential: The Lower Waterford Village is unique and distinct. It is Waterford's link with the past, and it functions as a residential community yet today. However, it does not have typical village public utilities such as water supply and sewage disposal, or the capability for handling additional traffic and parking. Thus, it should remain a compact residential village that preserves its historic quality and integrity. Uses that would be appropriate anywhere else in the town would not be so here and the type and density should be closely regulated.

State Designation of Lower Waterford Village as a "Village Center" by the Vermont Agency of Commerce and Community Development may be a way to encourage the retention of older commercial buildings, while maintaining the historic integrity of the Village. It would also put the Town in a more competitive position for certain state grants, including those available for restoration work on churches and municipal buildings.

Current zoning regulations make it difficult to make additions to structures in the Village. In order to make the rehabilitation of buildings easier to achieve, the dimensional regulations in this district may need revision.

Rural Residential: The town currently has a dispersed settlement pattern of relatively low density, and this is seen as a highly desirable aspect of the quality of life in Waterford and to the provision of necessary public services. The current overall residential density is roughly 1 dwelling per 40 acres. The desire to conserve natural resources, productive agricultural lands and maintain environmental quality the town's rural setting may require modifications to the current zoning regulations which permit minimum lot sizes of two acres. The establishment of a lower residential density coupled with provision for smaller lot sizes and preservation of blocks of open space is recommended in certain areas of town, and should be guided by the presence of significant blocks of agricultural land and/or wildlife habitat.

Industrial/Commercial: It is highly desirable to have areas set aside where it is appropriate for industrial or commercial ventures to locate. These ventures will be more likely to locate in Waterford, if they know that they will not have difficulty with acceptance within the community and will not have to go through lengthy processes of re-zoning, etc. The purpose of delineating these areas is to attract small ventures that are appropriate and in keeping with the rural character of Waterford and which will add to the tax base of the town and offer employment opportunities

to area residents. The zoning regulations for these areas may need to be revised to support development of desirable commercial operations, since there are currently no commercial or industrial uses permitted in this zoning district without the need for a conditional use permit. As noted earlier in this section, there are currently three areas zoned for commercial industrial use. One of those areas, located on the western corner of Town on Route 5, has never supported commercial use and due to its rural residential character it would appropriately be rezoned to the Rural Residential zone category. Another area of town, on the west side of Route 18 near the intersection with Duck Pond Road, has supported industrial and commercial use for about 50 years, and contains a commercial bakery, an excavating business and a concrete plant. This area would appropriately be rezoned to a commercial industrial category of land use. However, since the area is located within the source protection area of Stiles Pond, development standards would be necessary to ensure that any expansion to commercial or industrial operations would not have adverse impacts to surface water quality.

It is further noted that that the land across Duck Pond Road from an active stone quarry would appropriately be used in the future for stone excavation, since the land contains ledge. This area is currently zoned Rural Residential.

Rural and Forested Lands: These are lands that are remote from access to existing roadways, from any kind of public services and are characterized by poor soils and land conditions, higher elevations, and steep slopes. They are important for timber and other resources, and as wildlife habitat and scenic beauty and recreation. These areas should have a lower density of development than permitted in the rural residential district which could be achieved through the use of an overlay district.

Goals and Action Steps

1. Maintain the concentrated nature of the lower Waterford Village, encourage the retention of older buildings in this area for village-scale commercial uses, and support the revitalization of civic buildings.
 - Seek Village Center designation by the Agency of Commerce and Community Development
2. Maintain Waterford's rural setting, productive agricultural and forested lands
 - Identify areas where residential density should be lowered, and create density-based zoning districts that maintain low overall density while permitting smaller lot sizes to increase energy efficient development and to protect important natural resources.
 - Include planned unit development provisions in the Town's zoning bylaws to better enable developments that have reduced clearing and impervious coverage, and to enable flexibility in siting developments to avoid sensitive environmental features.
3. Direct commercial land uses to appropriate locations in Town

- Rezone as appropriate land suited to commercial uses, and remove from the commercial district land better suited to residential use.

X. CONFORMANCE OF PLAN WITH ADJACENT TOWNS AND REGION

Regional Plan

The goals identified in the Waterford Town Plan are compatible with the 2015 Regional Plan for the Northeast Kingdom. Goals related to preservation of agricultural uses, forest land and scenic resources are the same goals articulated in the regional plan. Waterford's focus on agriculture as the basis for local economic development uses the data from the regional plan to support its goals and action steps.

The Waterford Plan further recognizes the obligation of the Town to provide housing opportunities for all income levels of residents in the region, in accordance with State and regional housing goals. The inclusion of planned unit development provisions in Waterford's land use regulations will provide an opportunity to create more compact residential developments, while preserving the scenic views and agricultural resources that contribute to Waterford's rural character and provide a high quality of life.

Adjacent Municipalities

Waterford is adjacent and connected via public roads to the Town of Barnet on the southwest, St. Johnsbury on the northwest, and Concord on the northeast. The northern corner of Waterford touches the southern corner of Kirby, but no public road infrastructure connects the two towns. However, the wooded hillsides of Kirby afford scenic views from East Village Road in Waterford.

In 2015 the Town of Concord completed a comprehensive update of its Town Plan, and Barnet completed a minor update of its Plan to include a flood resilience element. The Town of St. Johnsbury is in the process of updating its Town Plan and expects to adopt an amended Plan in the Fall of 2016. Kirby is also in the process of updating its Town Plan.

Proposals in the Waterford Plan that are intended to preserve natural resources, preserve scenic views, and reduce the impacts of residential development would all have a positive impact on adjacent municipalities. These proposals include the reduction of permitted residential in certain areas of town, the creation of Planned Unit Development standards, and the regulation of development with River Corridors. Less intensive development in Waterford will reduce the likelihood of adverse effects within its shared watersheds with adjacent towns.

The proposal to rezone an area on Route 5 from Commercial Industrial to Rural Residential in Waterford will reduce the potential for commercial development in this location which could potentially detract from the vitality of commercial centers along Route 5 in Barnet and St. Johnsbury.

The proposed rezoning of an area on Route 18 near the intersection with Duck Pond Road from Rural Residential to Industrial Commercial should not negatively impact St. Johnsbury, even though the site is located in the Stiles Pond Source Protection Area, because:

- The site has historically supported commercial and industrial uses

- Expansion of the existing uses or the addition of commercial uses in this location would be subject to the conditional use review and performance standards currently contained in Waterford's zoning bylaw
- In drafting any proposed zoning change in this location, the Planning Commission may create additional performance standards or conditions for development within the Source Protection Area.

XI. PLAN IMPLEMENTATION

Goals and Action Steps

The following table identifies the goals and recommended actions that have been identified in each section of the Waterford Town Plan. The goals and action items are grouped by plan section, and each action is identified as “regulatory” or “non-regulatory” and identifies the party/parties that would implement the action.

HOUSING			
Goals and Action Steps	Type of Action		Responsible Party
	Regulatory	Nonregulatory	
1. Preserve Waterford’s stock of older houses and encourage their continued use to provide a range of housing choices.			
<ul style="list-style-type: none"> Provide incentives for the conversion and rehabilitation of vacant houses to needed rental housing units. 		X	Selectboard
<ul style="list-style-type: none"> Review dimensional requirements in the Village District and revise as necessary to allow for appropriate improvements and additions to existing properties. 	X		Planning Commission/ DRB/ZA
2. Maintain an adequate standard of housing for all its residents.			
<ul style="list-style-type: none"> Ensure that state fire and building code for rental properties and relevant local land use regulations are enforced. 	X		Health Officer/ Fire Warden/ZA
3. Maintain an overall low residential density in order to retain Waterford’s rural character.			
<ul style="list-style-type: none"> Revise local zoning to create additional classes of districts that maintain a residential density lower than the currently permitted 1 unit per two acres. Use data on existing land use, land cover, soils, and significant natural or scenic features (as depicted on the maps accompanying this plan) to guide the boundaries of new districts. 	X		Planning Commission/ Selectboard
4. Provide options for affordable housing that is in keeping with the character of Waterford’s rural setting, and which retains the pristine water quality, scenic and historic areas, and natural resources.			
<ul style="list-style-type: none"> Provide for density-based zoning or planned unit development regulations that permit smaller house lots while preserving 	X		Planning Commission/ Selectboard

significant blocks of rural land and maintaining a low overall residential density.			
5. Large housing developments (five lots or more) should be located within walking distance (approximately 1/2 mile) of existing community centers or should be self-contained in regard to new road construction and maintenance, and should provide for services, facilities, and open space as needed.			
<ul style="list-style-type: none"> Ensure that local land use regulations provide adequate standards to achieve these objectives. 	X		Planning Commission/Selectboard in consultation with DRB
COMMUNITY FACILITIES AND SERVICES			
Goals and Action Steps	Type of Action		Responsible Party
	Regulatory	Nonregulatory	
1. Achieve broadband coverage throughout the Town			
<ul style="list-style-type: none"> The Town of Waterford will work with the Connectivity Division at the Vermont Department of Public Service to provide information on areas in Town underserved by broadband and to help identify solutions that will best resolve connectivity problems 		X	Planning Commission/Selectboard
2. Future development should take into consideration the proximity of the existing public water supply main and the Source Protection Plan for the St. Johnsbury water supply.			
<ul style="list-style-type: none"> Coordinate land use decisions within the Stiles Pond Source Protection Area with the Town of St. Johnsbury. 		X	Planning Commission/DRB
<ul style="list-style-type: none"> Investigate possibility of tapping into public water main to support appropriate development in Waterford. 		X	Planning Commission/Selectboard
3. Any major developments in Town should be required to develop their own disposal systems in accordance with State permitting requirements, and which will require no commitment from the Town.			
<ul style="list-style-type: none"> Ensure that local land use regulations articulate requirements for development of community systems if needed. 	X		Planning Commission/Selectboard in consultation with DRB
4. Manage solid waste in a way that protects			

the environment and is in keeping with State recycling laws			
<ul style="list-style-type: none"> The Town of Waterford should remain a member of the Northeast Kingdom Waste Management District, as long as it remains economical and effective. 		X	Selectboard
EDUCATION			
Goals and Action Steps	Type of Action		Responsible Party
	Regulatory	Nonregulatory	
SEE SCHOOL DISTRICT REPORT		X	School Board
TRANSPORTATION			
Goals and Action Steps	Type of Action		Responsible Party
	Regulatory	Nonregulatory	
1. Maintain the scenic character and/or scenic views from the roads identified above.			
<ul style="list-style-type: none"> The Selectboard and the State of Vermont District Highway Engineer should consult with the Planning Commission regarding its recommendations concerning any plans for any reconstruction or major maintenance affecting these designated scenic roads (such as proposed road widening or tree removal). 		X	Selectboard/ Planning Commission
<ul style="list-style-type: none"> Upgrading of town roads, especially scenic roads, should conform to the basic standards of the booklet "Vermont Backroad," prepared by Northeastern Environmental Design, of which the town has a copy on file. No right-of-way less than fifty feet in width should be permitted for any new road. 		X	Selectboard/ Road Commissioner
2. Provide for safe and convenient alternative transportation options to the private automobile			
<ul style="list-style-type: none"> In addition to Route 18 where it approaches Lower Waterford Village, identify specific areas where roads or trails could be improved to increase safety by bicyclists and pedestrians. 		X	Planning Commission/ Road Commissioner
3. Do not increase the miles of Town road that needs maintenance.			
<ul style="list-style-type: none"> Ensure that subdivision regulations provide for a mechanism by which any new subdivision roads created are maintained in perpetuity by a homeowners association or other mechanism, to ensure that maintenance responsibility does not fall on the Town. 	X		Planning Commission/Selectboard/ DRB

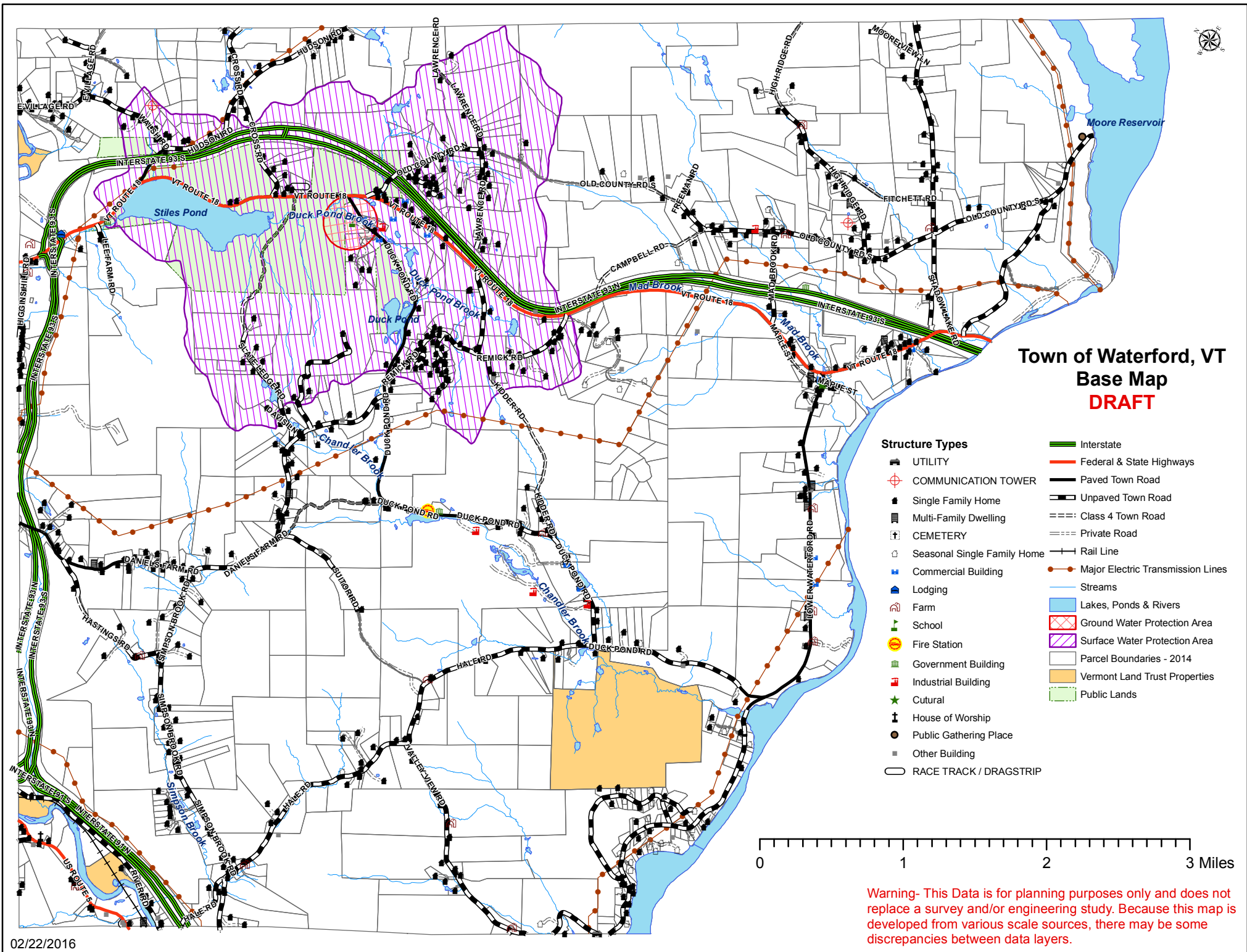
4. Identify road projects that will need to be completed in accordance with the upcoming MRGP and seek sources of funding.			
<ul style="list-style-type: none"> Seek assistance from NVDA transportation planning staff 		X	Selectboard/ Road Foreman
5. Ensure that new road and driveway construction does not negatively impact waterways.			
<ul style="list-style-type: none"> The layout of new subdivision roads and driveways, particularly in identified flood hazard, fluvial erosion, and river corridor protection areas, should be avoided. If new development is to be built in such areas, it should not exacerbate flooding and fluvial erosion. 	X		DRB/Selectboard
ENERGY			
Goals and Action Steps	Type of Action		Responsible Party
	Regulatory	NonRegulatory	
1. Support the use of renewable energy in Town, while preserving scenic and agricultural resources			
<ul style="list-style-type: none"> Investigate the establishment of a local PACE program as a way to encourage the installation of residential-scale renewable energy 		X	Selectboard
<ul style="list-style-type: none"> Develop local regulations that establish screening requirements, as provided by Act 56, to be applied to ground-mounted solar plants, as one means of protecting scenic views 	X		Planning Commission/ Selectboard
<ul style="list-style-type: none"> Use renewable energy systems for any newly constructed Town buildings. 		X	Selectboard
2. Conserve forested lands in Town as a valuable renewable fuel source			
<ul style="list-style-type: none"> Provide education to property owners about the tax benefits of enrollment of forested land in the Current Use program, and the importance of forest management plans to ensure the continued existence of wood as a local fuel source 		X	Planning Commission/ Selectboard
<ul style="list-style-type: none"> Develop standards for density-based zoning regulations that require preservation of important blocks of forested lands while allowing smaller lot sizes. 	X		Planning Commission/ Selectboard in consultation with DRB
ECONOMIC DEVELOPMENT			
Goals and Action Steps	Type of Action		Responsible Party

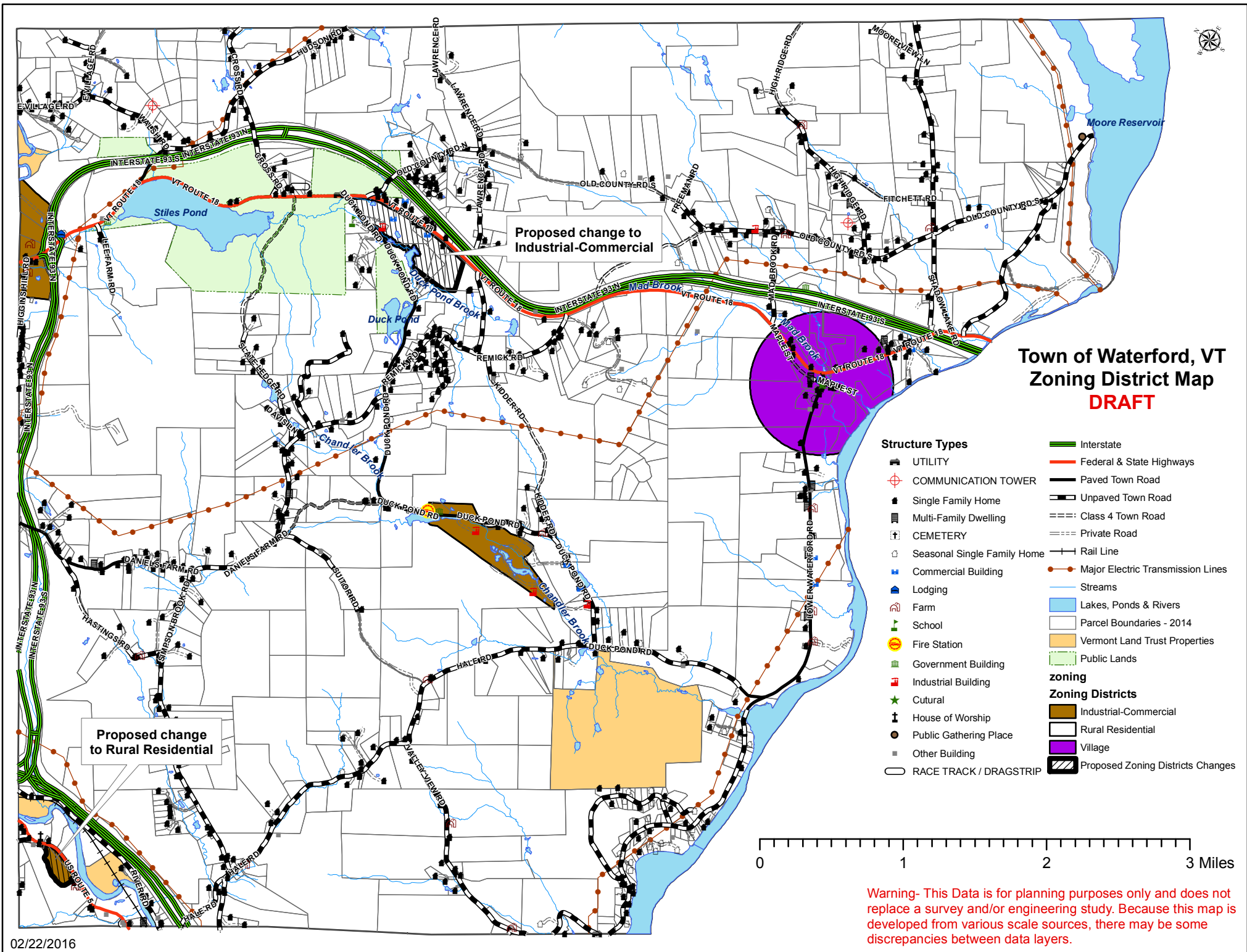
1. Retain and promote agriculture and forest-based industry as the prime economic base within the town.			
	Regulatory	Nonregulatory	
<ul style="list-style-type: none"> • Provide assistance to residents seeking to establish on-farm enterprises, through the use of land use regulations or incentives. 	X	X	Planning Commission/ Selectboard
<ul style="list-style-type: none"> • Provide support to farmers interested in diversification and/or product development. Provide information on grants and low-interest loans for value-adding businesses and diversification. 		X	Planning Commission
<ul style="list-style-type: none"> • Form a local agricultural committee to serve as an information clearinghouse and provide marketing support for local farm-based and forest-based businesses 		X	Selectboard/Planning Commission
<ul style="list-style-type: none"> • Better define the definitions of home occupation to accommodate the type of farm-based businesses the community would like to see 	X		Planning Commission/ Selectboard in consultation with DRB and ZA
2. Achieve Town-wide broadband coverage to support local farm and forest-based businesses, and to support telecommuting and home-based businesses.			
<ul style="list-style-type: none"> • Contact the Connectivity Division at the Vermont Department of Public Service to provide information on areas in Town underserved by broadband and to help identify solutions that will best resolve connectivity problems 		X	Planning Commission/ Selectboard
3. Maintain enough forest land to support wood-related industries, retain the town's natural beauty, promote recreational usage, and maintain a healthy, sustainable forest based economy.			
<ul style="list-style-type: none"> • Encourage the use of “planned unit development” coupled with low density zoning and other tools to preserve agricultural and forest resources. 	X	X	Planning Commission/Selectboard
<ul style="list-style-type: none"> • Educate landowners to enroll productive forestland and agricultural land in the “current use” program. 		X	Planning Commission
FLOOD RESILIENCE			

Goals and Action Steps	Regulatory	Nonregulatory	Responsible Party
1. Mitigate flood hazards and maintain good water quality by undertaking restoration projects, reducing stormwater runoff from new development, and assuring long-term protection of the River Corridor from incompatible development and uses.			
<ul style="list-style-type: none"> • Create a capital improvement plan to address the projects identified for Waterford in the LHMP, beginning with the highest priority projects. 		X	Planning Commission/ Selectboard
<ul style="list-style-type: none"> • Amend the Flood Hazard regulations to regulate development within the River Corridor areas mapped by ANR, in order to mitigate flood hazard risks and protect investments made in restoration projects, and receive a higher amount of funding under ERAF 	X		Planning Commission/ Selectboard
<ul style="list-style-type: none"> • Consider establishing impervious coverage limitations as part of the town's zoning district standards to limit stormwater runoff that can contribute to flooding and degrade water quality. 	X		Planning Commission/ Selectboard
<ul style="list-style-type: none"> • Include Planned Unit Development provisions in the Town's zoning bylaws to better enable developments that have reduced clearing and impervious coverage, and enable flexibility in siting developments outside of floodplains and river corridors. 	X		Planning Commission/ Selectboard
<ul style="list-style-type: none"> • Hold a flood hazard area education event to inform local residents. 		X	Planning Commission
LAND USE			
Goals and Action Steps	Type of Action		Responsible Party
	Regulatory	Nonregulatory	
1. Maintain the concentrated nature of the lower Waterford Village, encourage the retention of older buildings in this area for village-scale commercial uses, and support the revitalization of civic buildings.			
<ul style="list-style-type: none"> • Seek Village Center designation by the Agency of Commerce and Community Development 		X	Planning Commission/ Selectboard
2. Maintain Waterford's rural setting, productive agricultural and forested lands			
<ul style="list-style-type: none"> • Identify areas where residential density 	X		Planning Commission/

should be lowered, and create density-based zoning districts that maintain low overall density while permitting smaller lot sizes to increase energy efficient development and to protect important natural resources			Selectboard
<ul style="list-style-type: none"> • Include planned unit development provisions in the Town’s zoning bylaws to better enable developments that have reduced clearing and impervious coverage, and to enable flexibility in siting developments to avoid sensitive environmental features. 	X		Planning Commission/ Selectboard
3. Direct commercial land uses to appropriate locations in Town			
<ul style="list-style-type: none"> • Rezone as appropriate land suited to commercial uses, and remove from the commercial district land better suited to residential use. 	X		Planning Commission/ Selectboard

APPENDIX A: MAPS





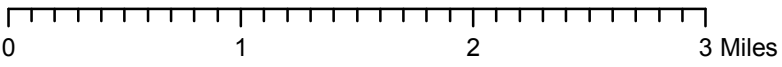
Proposed change to Industrial-Commercial

Town of Waterford, VT Zoning District Map

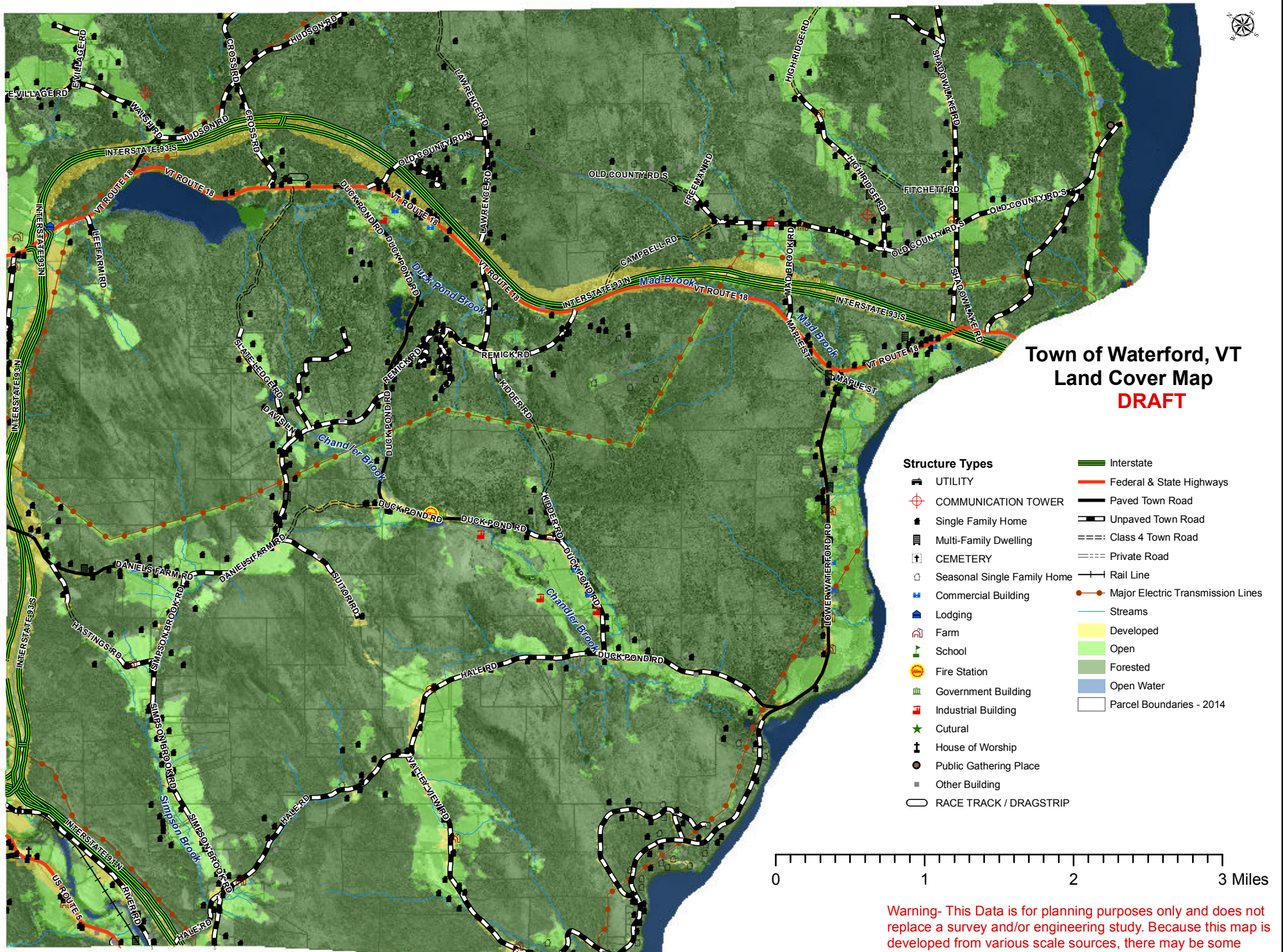
DRAFT

- Structure Types**
- UTILITY
 - COMMUNICATION TOWER
 - Single Family Home
 - Multi-Family Dwelling
 - CEMETERY
 - Seasonal Single Family Home
 - Commercial Building
 - Lodging
 - Farm
 - School
 - Fire Station
 - Government Building
 - Industrial Building
 - Cultural
 - House of Worship
 - Public Gathering Place
 - Other Building
 - RACE TRACK / DRAGSTRIP
- Transportation**
- Interstate
 - Federal & State Highways
 - Paved Town Road
 - Unpaved Town Road
 - Class 4 Town Road
 - Private Road
 - Rail Line
 - Major Electric Transmission Lines
- Water Features**
- Streams
 - Lakes, Ponds & Rivers
- Boundaries & Land**
- Parcel Boundaries - 2014
 - Vermont Land Trust Properties
 - Public Lands
- zoning**
- Zoning Districts**
- Industrial-Commercial
 - Rural Residential
 - Village
 - Proposed Zoning Districts Changes

Proposed change to Rural Residential

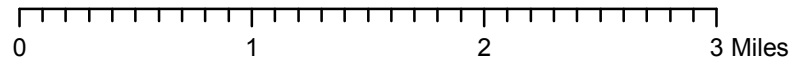


Warning- This Data is for planning purposes only and does not replace a survey and/or engineering study. Because this map is developed from various scale sources, there may be some discrepancies between data layers.



Town of Waterford, VT Land Cover Map DRAFT

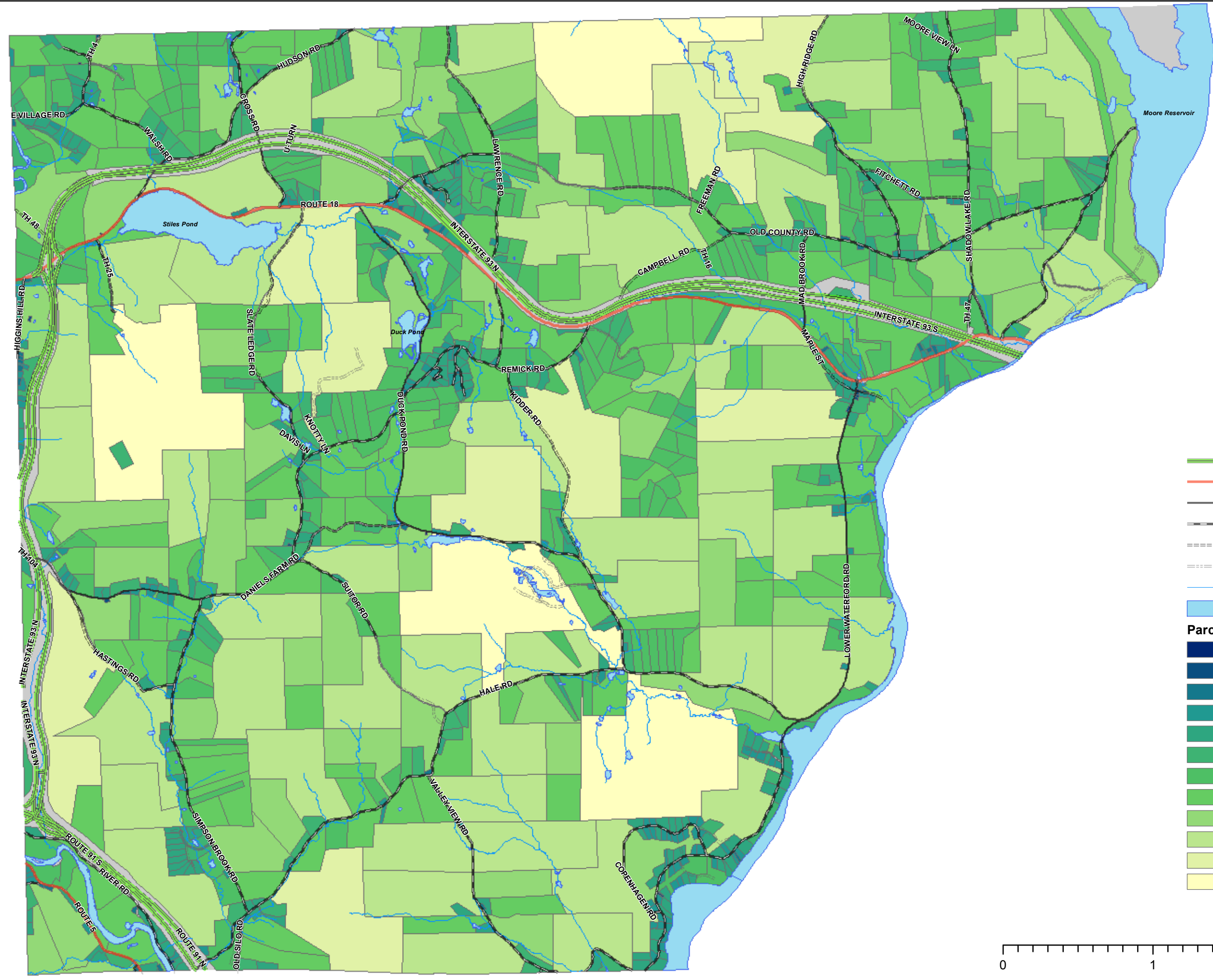
- Structure Types**
- UTILITY
 - COMMUNICATION TOWER
 - Single Family Home
 - Multi-Family Dwelling
 - CEMETERY
 - Seasonal Single Family Home
 - Commercial Building
 - Lodging
 - Farm
 - School
 - Fire Station
 - Government Building
 - Industrial Building
 - Cultural
 - House of Worship
 - Public Gathering Place
 - Other Building
 - RACE TRACK / DRAGSTRIP
- Land Cover**
- Interstate
 - Federal & State Highways
 - Paved Town Road
 - Unpaved Town Road
 - Class 4 Town Road
 - Private Road
 - Rail Line
 - Major Electric Transmission Lines
 - Streams
 - Developed
 - Open
 - Forested
 - Open Water
 - Parcel Boundaries - 2014



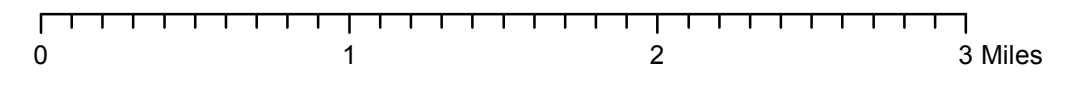
Warning- This Data is for planning purposes only and does not replace a survey and/or engineering study. Because this map is developed from various scale sources, there may be some discrepancies between data layers.

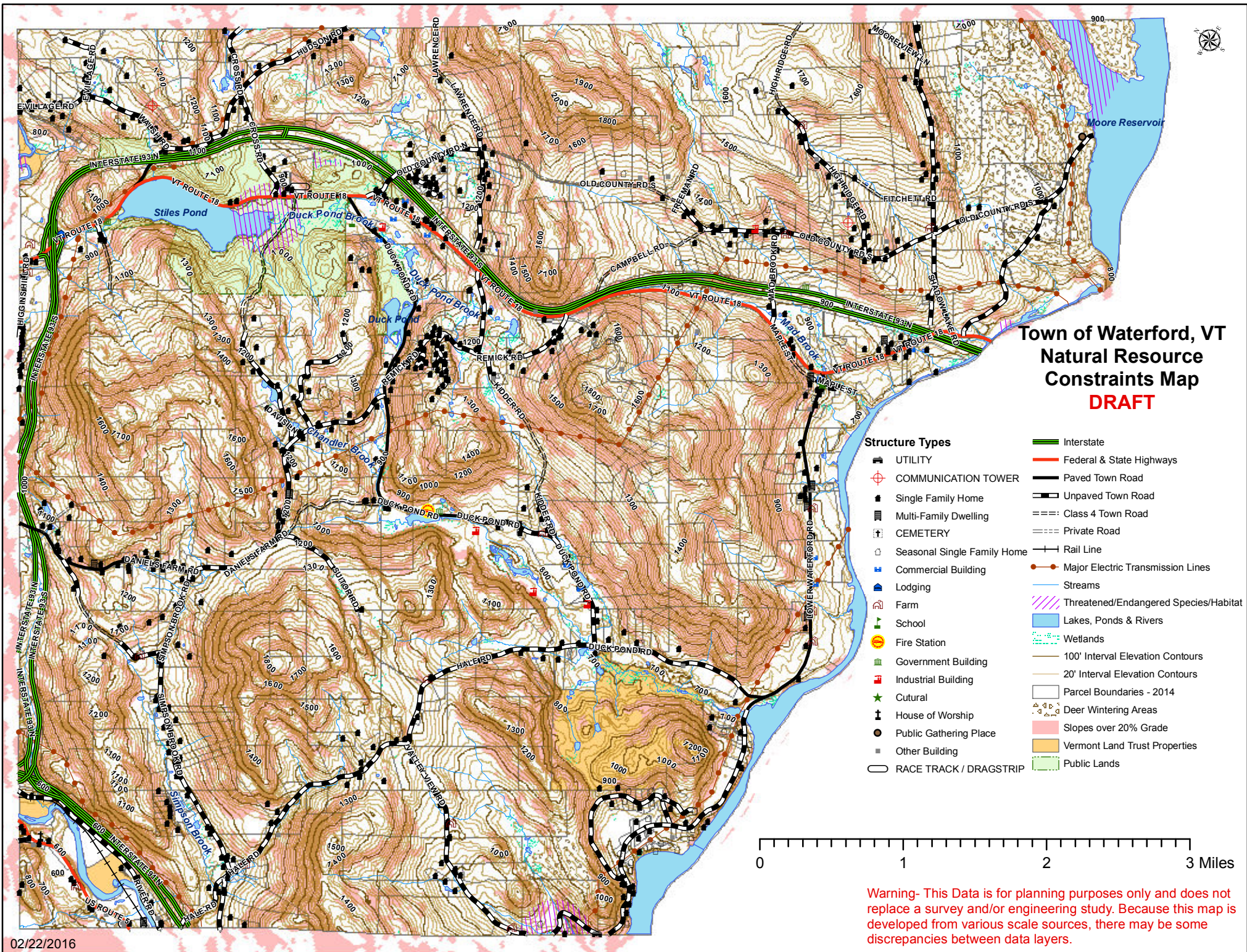
Town of Waterford Parcel distribution by size

02/12/2015



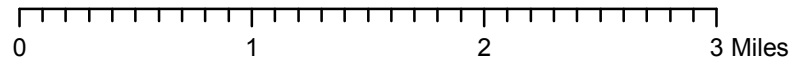
- Interstate
 - US & State Highway
 - Paved Town Road
 - Unpaved Town Road
 - Class 4 Town Road
 - Private Road
 - Streams
 - Lakes, Ponds & Rivers
- Parcel Sizes**
- Under 0.25 acres (14)
 - 0.25 acres to 0.49 acres (12)
 - 0.5 acres to 0.99 acre (39)
 - 1 acre to 1.99 acres (142)
 - 2 acres to 4.99 acres (231)
 - 5 acres to 9.99 acres (116)
 - 10 acres to 19.99 acres (195)
 - 20 acres to 49.99 acres (141)
 - 50 acres to 99.99 acres (58)
 - 100 acres to 199.99 acres (46)
 - 200 acres to 299.99 acres (9)
 - Over 300 acres (4)



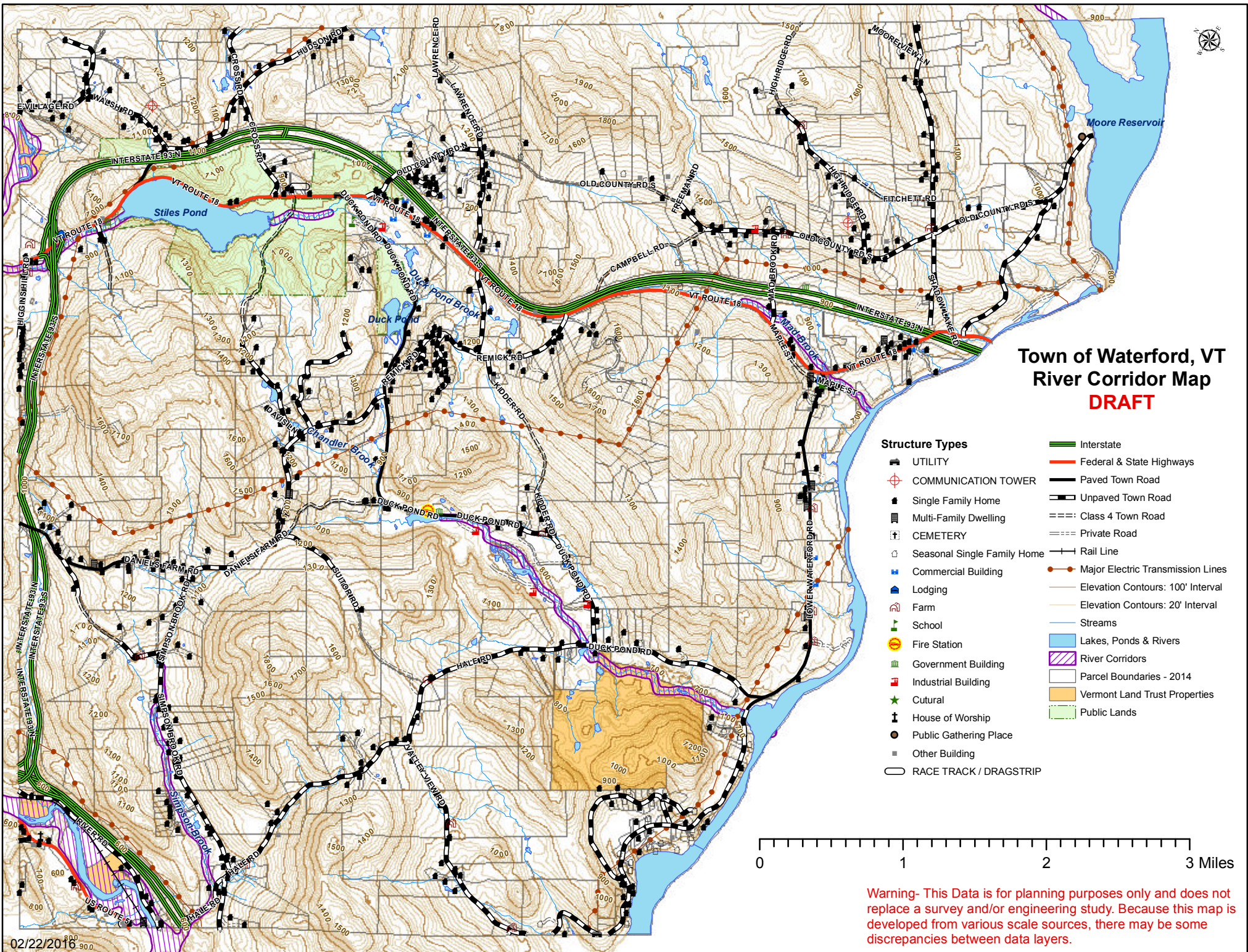


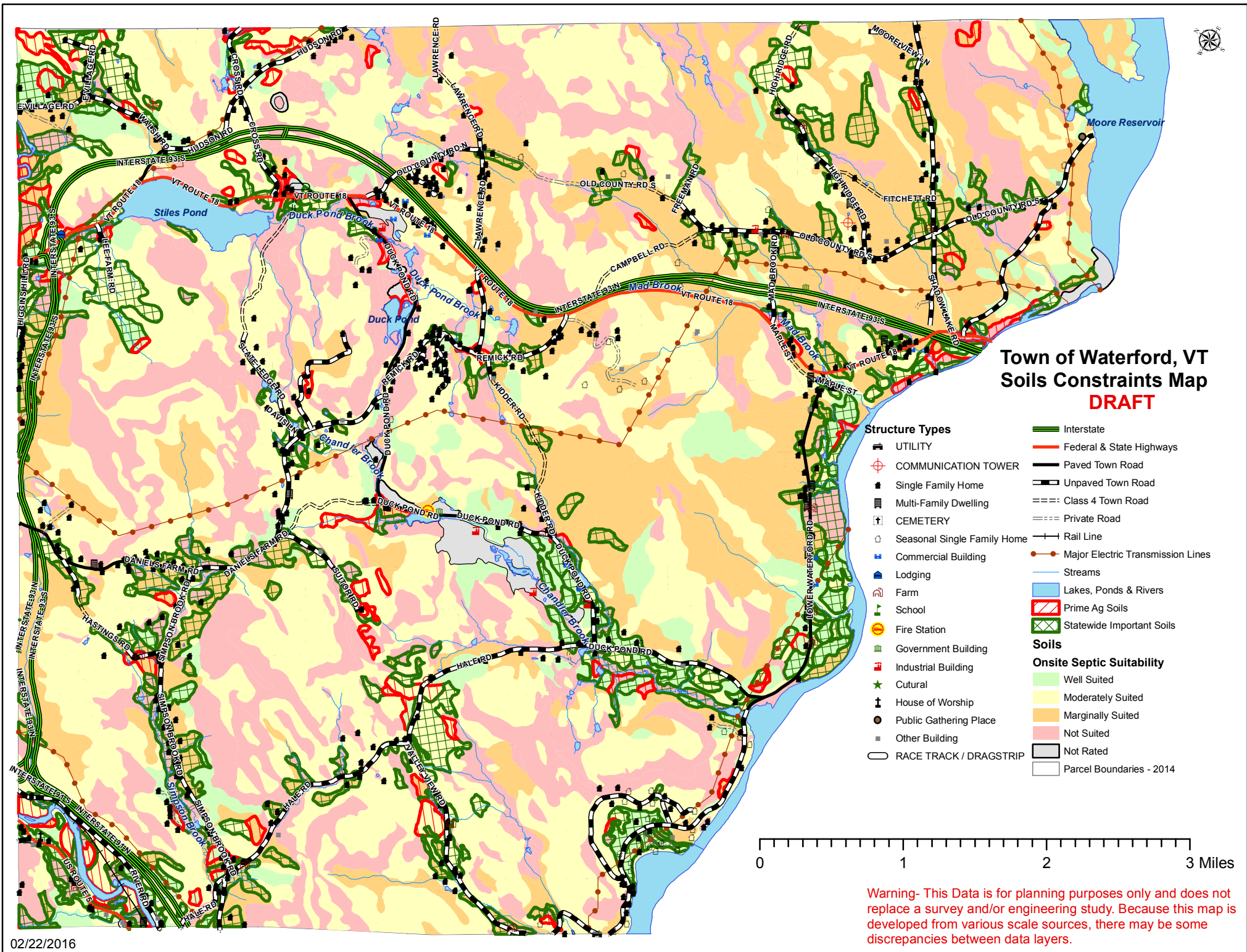
**Town of Waterford, VT
Natural Resource
Constraints Map
DRAFT**

- Structure Types**
- UTILITY
 - COMMUNICATION TOWER
 - Single Family Home
 - Multi-Family Dwelling
 - CEMETERY
 - Seasonal Single Family Home
 - Commercial Building
 - Lodging
 - Farm
 - School
 - Fire Station
 - Government Building
 - Industrial Building
 - Cultural
 - House of Worship
 - Public Gathering Place
 - Other Building
 - RACE TRACK / DRAGSTRIP
- Structure Types**
- Interstate
 - Federal & State Highways
 - Paved Town Road
 - Unpaved Town Road
 - Class 4 Town Road
 - Private Road
 - Rail Line
 - Major Electric Transmission Lines
 - Streams
 - Threatened/Endangered Species/Habitat
 - Lakes, Ponds & Rivers
 - Wetlands
 - 100' Interval Elevation Contours
 - 20' Interval Elevation Contours
 - Parcel Boundaries - 2014
 - Deer Wintering Areas
 - Slopes over 20% Grade
 - Vermont Land Trust Properties
 - Public Lands



Warning- This Data is for planning purposes only and does not replace a survey and/or engineering study. Because this map is developed from various scale sources, there may be some discrepancies between data layers.





APPENDIX B: WATERFORD COMMUNITY SURVEY