Notice of Public Hearing

The Johnson Planning Commission hereby provides notice of a public hearing being held pursuant to 24 VSA §4384 (Preparation of Plans) and §4444 (Public Hearing Notice) for the purpose of hearing public comments concerning the proposed *Town and Village of Johnson Municipal Development Plan 2016 - 2021*

The public hearing has been scheduled for:

DATE: **June 14, 2016 at 7:00 p.m.**
PLACE: **Johnson Municipal Offices**

Statement of Purpose: The public hearing is being held to solicit public comments regarding the draft *Town and Village of Johnson Municipal Development Plan*.

Johnson's plan is guided by the following overall objectives:

- To nourish vibrancy of Johnson's compact village center surrounded by rural countryside.
- To expand economic opportunities and assist in creating well-paying local jobs.
- To increase proportion of owner-occupied housing stock, and support equitable regional distribution of subsidized and affordable housing.
- To facilitate access to educational opportunities for all ages, including child care.
- To provide for safe transportation network.
- To identify important natural and historic resources and encourage the wise use of these resources.
- To encourage the efficient use of energy and renewable energy sources.
- To maintain and enhance recreational opportunities.
- To plan for an efficient system of public facilities and services.
- To incorporate flood resiliency in evaluation of costs and benefits of community & economic development projects.

Geographic Area Affected: This Plan shall apply to all areas in the Town and Village of Johnson.

Table of Contents: (abbreviated)

Introduction to Johnson
2016-2021 Development Plan for Johnson
Overall Objectives of the Plan
Demographics and Housing
Economic Development
Natural, Scenic and Historic Resources
Energy
Transportation
Public Services and Community Facilities
Education
Recreation
Flood Resiliency
Land Use

Location where full text may be examined:
Copies of the full text of the proposed *Town and Village of Johnson Municipal Development Plan* can be located in the Johnson, Vermont Municipal Offices. A copy is also available for inspection during regular business hours at the offices of the Lamoille County Planning Commission, 52 Portland St., Morrisville, VT.

Memo to: Adjacent communities and VT DHCD
From: Johnson Planning Commission
Date: May 12, 2016
Re: Planning Commission Report

The Johnson Planning Commission has drafted a unified Town and Village Municipal Development Plan for consideration by the Selectboard and the Village Trustees to guide the town and the village for the next five years. A report is required by state law when considering an amendment of a municipal plan. This report is intended to meet the statutory requirements of 24 V.S.A. §4384(c).

The drafted Town and Village of Johnson Municipal Development Plan 2016-2021 is consistent with the goals established in the Act and the proposed changes will not create any inconsistencies. The proposed plan is consistent with the goals established in 24 V.S.A. §4302 and as such is guided by the following overall objectives:

- Nourish vibrancy of Johnson's compact village center surrounded by rural countryside.
- Expand economic opportunities and assist in creating well-paying local jobs.
- Increase proportion of owner-occupied housing stock, and support equitable regional distribution of subsidized and affordable housing.
- Facilitate access to educational opportunities for all ages, including child care.
- Provide for safe transportation network.
- Identify important natural and historic resources and encourage the wise use of these resources.
- Encourage the efficient use of energy and renewable energy sources.
- Maintain and enhance recreational opportunities.
- Plan for an efficient system of public facilities and services.
- Incorporate flood resiliency in evaluation of costs and benefits of community & economic development projects.

Besides combining the previously separate Town and Village plans into one document, the plan also include the following significant additions:

1. The plan includes a new Flood Resiliency chapter.
2. The plan includes an expanded Energy chapter.
3. While this plan does not alter land use designation of any area, it divides the former Main Street District into the Main Street Storefront and Main Street General Districts. This change has been implemented in order to approximate the language of the plan to the proposed Form Based Code that is currently undergoing a review by Johnson Planning Commission. This revision provides additional clarity, and should not change demands on the municipal tax base or need for public services.

If there are any questions or comments with respect to the plan or this report, please contact Seth Jensen (802-888-4548) at the Lamoille County Planning Commission.

Seth Jensen, Senior Planner
Lamoille County Planning Commission

Town and Village of Johnson
Municipal Development Plan
2016 - 2021

JOHNSON PLANNING COMMISSION DRAFT
FOR PUBLIC HEARING

This Plan was prepared by:
The Johnson Planning Commission

The planning process was coordinated by:
Lea Kilvadyova, Community & Economic Development Coordinator
and the Lamoille County Planning Commission

Development of the Plan was funded by a municipal
planning grant awarded by:
The Department of Housing and Community Development

INTRODUCTION TO JOHNSON

Johnson is a town of 3,446 people nestled in the heart of Lamoille County. The town is comprised of approximately 29,492 acres or 46 square miles. Mountains and forest dominate Johnson's landscape and the spine of the Green Mountains winds through the town northeast to southwest. Butternut Mountain is the highest peak that falls entirely within the town. The peak of the 3,715-foot Sterling Mountain (also known as White Face Mountain) is located just south of the Johnson town line.

The Gihon and Lamoille rivers are a major recreational and scenic resource. In the past, the Gihon provided the foundation for Johnson's water-powered mill economy. The first generating plant in town was located on the falls just north of the Power House Bridge. Johnson Woolen Mills dates back to 1836, when sheep outnumbered cows, and to date remains a core feature of the Johnson Village business district. Around the turn of the century, talc was the prominent industry in Johnson. Today, trees continue to be Johnson's largest crop – for fuel, saw logs, pulp, Christmas trees and maple products. The former Lamoille valley railroad that served as a vital east-west transportation corridor primarily transporting dairy products for the Boston market as well as timber, limestone, talc and asbestos from the Northern Vermont forests and quarries has been redeveloped into a year round recreational path known as Lamoille Valley Rail Trail. Stowe and Smugglers Notch Ski Resorts located in neighboring communities of Stowe and Cambridge are major contributors to the regional tourism economy, and businesses in the accommodations and food sectors that support the ski resorts provide about a third of all private jobs in Lamoille County.

Johnson, granted in 1782 to Samuel Johnson and others, was chartered as a town in January, 1792. In 1856, Johnson annexed part of the town of Sterling, and in 1894 the Village of Johnson was incorporated. Today, the Village is home to about 43% percent of Johnson's population. The Town and Village of Johnson remain separate governmental bodies.

Johnson Village represents the community's cultural, commercial and institutional center. The Village is a compact community that is home to a number of unique businesses, heritage buildings and residential neighborhoods. Johnson residents cherish the vibrancy of our downtown and both the village and the town governments have made great investments in improving the essential downtown infrastructure; whether it is roads, sidewalks, utilities or the creation of spaces for the community's enjoyment.

Johnson has long been a center for education and today up to 53% of in-town jobs are in educational services. Johnson State College's roots go back to Johnson Academy School, founded in 1828. Today, Johnson State College has approximately 1,650 students.

Founded by artists in 1984, the Vermont Studio Center is the largest international artists and writers' Residency Program in the United States, hosting 50 visual artists and writers each month from across the country and around the world. The Vermont Studio Center, in conjunction with Johnson State College's Fine and Performing Arts Program represent a uniquely gifted and diverse artistic community present in Johnson year round.

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2016-2021 DEVELOPMENT PLAN FOR JOHNSON

Every five years, the Johnson Planning Commission undertakes the task of writing a development plan for our community. The plan is an important document that provides a framework for future community decisions. The plan is also valuable source of information and serves as a reference for local boards, citizens and businesses, and other governmental organizations, such as neighboring towns, state agencies and regional planning commissions.

The 2016-2021 plan is a document that strives to present combined aspirations of two municipalities that together form Johnson. The municipalities are the Town of Johnson and the Village of Johnson and they each provide services to Johnson residents. The Town, for example, takes care of town highways. The Village maintains sidewalks. The Town contracts for police and ambulance services. The Village - primarily within its boundaries - provides electricity and operates a water supply and sewer systems. Johnson residents, no matter whether residing in the Town or the Village, often utilize and benefit from services provided by both municipalities. The residents of the Town frequent businesses and public amenities within the village while residents of the Village enjoy the scenic character and rural amenities available throughout town. This plan strives to look at the Johnson community comprehensively and outline themes that are important to the community as a whole.

During the writing of the plan, the Johnson Planning Commission encouraged citizen participation in numerous ways. Notices were posted on Front Porch Forum, Friends of Johnson municipal newsletter and the Town webpage seeking involvement and soliciting comment on the plan. The Commission reached out to local committees such as the Conservation Committee, Recreation Committee of School Board for input. The Commission held public meetings, and the Selectboard and the Village Trustees held statutory public hearing to obtain input.

In developing this plan, we reviewed the plans of our neighboring towns of Hyde Park, Eden, Morristown, Cambridge, Waterville and Belvidere and it is our belief that our plan does not counter act with the planning goals of the neighboring municipalities. We also believe that policies and implementation recommendations of this plan support the overall objectives of the Lamoille County Regional Plan for years 2015-2023 which are to: (1) to guide growth into compact settlements; (2) to protect the region's natural and working landscapes by promote thriving, compact village centers surrounded by rural countryside; and (3) to guide growth that promotes sustainability of the region's rural natural systems, valuable agricultural and silvicultural resources, and recreation amenities. In drafting our municipal plan, we found that policies contained in our plan complement the overall objectives of the regional plan.

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OVERALL OBJECTIVES OF THE PLAN

Johnson's plan is guided by the following overall objectives:

- To nourish vibrancy of Johnson's compact village center surrounded by rural countryside.
- To expand economic opportunities and assist in creating well-paying local jobs.
- To increase proportion of owner-occupied housing stock, and support equitable regional distribution of subsidized and affordable housing.
- To facilitate access to educational opportunities for all ages, including child care.
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DEMOGRAPHICS AND HOUSING

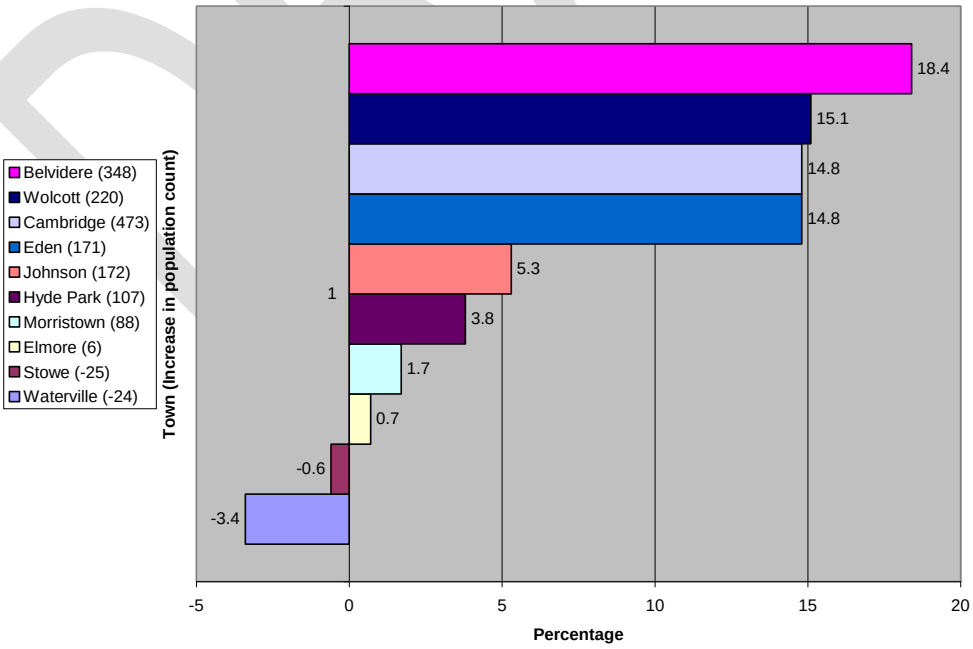
A. DEMOGRAPHICS

Johnson is the fourth most populated municipality in Lamoille County. The US Census Bureau counted 3,446 people living in Johnson in 2010. This includes the population of Johnson Village which was 1,443 people at the same time.

Between 2000 and 2010, the town's population grew by 5.3% or by 172 people. The overall Lamoille County growth rate was also 5.3%. The fastest growing towns were Belvidere (18.4%), Wolcott (15.3%), and Cambridge and Eden (both at 14.8%). Because of its growth rate, Cambridge surpassed Johnson in its total population number and changed the ranking of Johnson from 3rd to 4th largest Lamoille County municipality. Complete population growth statistics for all towns in Lamoille County are shown in Figure 1 below. The numbers in brackets show increases in total population numbers in different towns.

Between 2000 and 2010 Lamoille County's growth slowed down considerably, but still exceeded growth statewide. While between 1990 and 2000, the County's population grew by 17.7%, between 2000 and 2010, the growth was 5.3%. The State of Vermont's overall population only increased by 2.8% between 2000 and 2010; compared to 8.2% between 1990 and 2000. Vermont's rate of growth between 2000 and 2010 ranked 44th in the nation. Note that Lamoille County and Johnson are both growing at a faster rate than the State of Vermont as a whole.

Figure 1.
Population Growth Rate 2000-2010
(2000-2010 Census)



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Because of the presence of Johnson State College, Johnson is the youngest town in Lamoille County. The median age is 27 years in Johnson (Town and Village) 22 in Johnson Village, and 40 years in the County. Statewide, the median age is 42. This substantial difference places Johnson in a unique situation. The supply of housing, for example, is influenced by the fact that younger individuals require different types of housing than the middle aged or senior households. In Johnson, this specific housing supply manifests itself by ample availability of rental housing units as well as the housing provided in college dorms. In 2010, the college dorms housed about 20 percent of Johnson's population or 557 residents.

B. HOUSING

In 2010, Johnson's residents lived in 1,210 housing units/ households plus the dormitories by Johnson State College. The average household size was 2.37 people. The majority of the households owned their homes (749 households) while the rest rented their homes (461 households). Approximately 135 housing units were vacant. Among the vacant housing units were seasonal units (64), rental units (20) and units for sale (17).

Table 1: Comparison of housing unit characteristics in Johnson (2000 and 2010)

Johnson	**2010**	**2000**
Total # of housing units	1,345	1,263
Total # occupied housing units	1,210	1,170
Owner occupied units	749	727
Renter occupied units	461	443
Vacant units	135	93
... Seasonal units	*... 64*	*... 50*
... Rental units	*... 20*	*... 9*
... Units only for sale	*... 17*	*... 8*
Vacancy rate	10%	7.4%
Rental units vacancy rate	4.3%	1.8%

Rental Housing

According to American Community Survey estimates of 2014**, Johnson contained 470 rentals, which is 40 percent of the total housing units. Relative to other comparably sized communities in Lamoille County, Johnson has a higher percentage of renter-occupied housing when compared to Morristown (30% renter-occupied housing) and a similar percentage as Stowe (also 40% renter-occupied housing). The percentage of rental housing is even higher in Johnson Village – with 50% of units being renter occupied. The Lamoille County average for the renter occupied units is 29 percent.

*** Note: 2014 numbers are based on American Community Survey Estimates. Methodologies used for the ACS differ from those used for the Decennial Census, and may account for some variation in figures.*

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Housing affordability
The Vermont Department of Economic, Housing and Community Development (DEHCD) housing policy states that housing is "affordable" when the costs (including rent and utilities, or mortgage payments and taxes) are no more than 30-percent of gross income for a household earning 80-percent of the county median. According to this definition, housing is not affordable for a significant portion of Johnson's population. Town wide, approximately 48 percent of owners with mortgages, 36 percent of owners without mortgages, and 64 percent of renters in Johnson spent 30 percent or more of household income on housing. In the Village only, approximately 56 percent of owners with mortgages, 38 percent of owners without mortgages, and 49 percent of renters in Johnson spent 30 percent or more of household income on housing.

Subsidized Rental Housing
The Affordable Housing Database, supported by the Vermont Housing Finance Agency, includes three projects in Johnson. The first one is St. John's Knoll and is comprised of 20 units dedicated to seniors. The second is Johnson Group home, seven units reserved for the disabled. The third is 5 units (4 two-bedrooms and 1 one-bedroom) on Main Street owned by the Lamoille Housing Partnership. Johnson Community Housing, a housing development consisting of 24 affordable housing units for families and seniors on School Street, became available for renting in March 2011.

Real Estate Values
The Vermont Department of Taxes provides data on all property transactions in the state. The median sales price of a single family home sold between January and June 2015 was $142,500. A total of 14 homes sold in Johnson in this time period. Trends depicting the house sales for the past ten years are shown in the table below.

Table 2: Number of primary residencies sold and median sales prices for Johnson (2005-2014)

Year	No of single family home primary residencies sold	Median sales price for primary residence
2005	32	$144,500
2006	39	$140,000
2007	29	$163,000
2008	15	$179,000
2009	16	$162,500
2010	17	$135,000
2011	13	$149,000
2012	8	$101,400
2013	19	$198,000
2014	25	$155,000

Housing stock by structure
According to the American Community Survey 2010-2014 estimates, 54.9% percent of the total housing units was in single-unit structures, 27.4% was in multi-unit structures, and 17.6% percent was mobile homes. Johnson Village has a higher percentage of multi-unit structures

(44.9%). In this regard, Johnson's housing stock differs significantly from the rest of the Lamoille County where the proportion of one unit structures in the County s notably higher and the proportion of mobile homes is significantly lower.

Table: Comparison of housing stock by structure.

Housing stock by structure	**Johnson (Town & Village)**	**Johnson Village**	**Lamoille County**
Single unit structures	54.9%	40.6%	66.6%
Multi-unit structures	27.4%	44.9%	24.7%
Mobile homes	17.6%	14.4%	8.7%

Of note is the high percentage of mobile homes in Johnson. By state law, municipalities must treat mobile homes the same as other types of housing and must allow mobile home parks in their communities. While mobile homes provide an important source of affordable, detached housing, especially in a rural setting, there are challenges associated with mobile homes. Many older models are not particularly energy efficient or adapted to cold weather climates. Mobile homes may also depreciate, rather than appreciate, which can negate their long term benefit in terms of affordability. Pilot programs to replace older mobile homes with newer, more energy efficient models that are less likely to depreciate have recently been undertaken statewide.

Housing stock by age

Much of Johnson's housing stock was built prior to 1980 (56.7% town wide and 67.7% in the Village compared with 51.9% in Lamoille County). The 1980's are an important threshold, as lead paint was banned in 1978 and most asbestos containing products such as insulation were banned in 1989. In addition to led paint and asbestos, older housing is less likely to meet modern fire and access code and less likely to be energy efficient.

Housing stock by age	**Johnson (Town & Village)**	**Johnson Village**	**Lamoille County**
Built 1980 or later	43.2%	32.3%	48.1%
Built 1979 or earlier	56.7%	67.7%	51.9%

POLICIES AND IMPLEMENTATION RECOMMENDATIONS

- Johnson understands that the ability of Johnson residents to affordably rent or purchase a home is directly linked to their income levels. In that regard, the Town will support and implement initiatives that will improve overall economic conditions, increase local employment opportunities and provide workforce investment training opportunities for Johnson residents. The Town will also support residential developments that are consistent with land use policies stated in this plan and that enable residents of different ages to live in a broad variety of housing types based on their preferences and what they can afford.

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- Johnson understands that people's desire to locate their home in Johnson is connected to their perceptions of the quality of life in Johnson. The quality of life factors include stable neighborhoods, quality public education, higher education and childcare programs, recreational and cultural opportunities, and services available to Johnson residents (such as town-wide access to broadband), etc. To that end, we are committed to supporting initiatives that make Johnson an attractive place to live, work and recreate.

- Johnson's housing stock stands out in Lamoille County statistics in that the proportion of one unit housing structures (i.e. single family homes) in Johnson is notably lower in Johnson than in Lamoille County (54.9% in Johnson Town and Village combined, and 40.6% in Johnson Village versus 66.6% in the County). Based on the statistics presented in this chapter, housing affordability is a challenge for homeowners as well as renters. To that end, Johnson is interested in correcting the existing imbalance by working with developers interested in helping Johnson residents build and rehabilitate single-family homes.

- There are employers in Johnson that would like to help their employees find a place to live in Johnson that matches their needs. Johnson supports these employers in their endeavors and will support an effort to document the employers' and employees' housing needs and discuss steps that can be taken to address the need.

- Johnson encourages regional and state housing and grant-making agencies to focus their efforts on the rehabilitation of the existing housing stock. Projects that will result in the availability of owner- occupied perpetually affordable housing units are encouraged.

- Johnson encourages efforts that will address the structural and visual deterioration of Johnson's aging rental housing stock. To that end, Johnson's Revolving Loan Funds provide affordable loans for projects that will improve building appearance and address structural issues of buildings.

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ECONOMIC DEVELOPMENT

Johnson's local economy cannot be separated from the larger regional economy within which it is part. Reinforcing this notion is Johnson's geographic location at the near center of the region and one of only two municipalities that does not border a neighboring county. Even though a significant portion of Johnson residents work in Johnson, the majority of workers leave town to go to work. Destination counties of workers travelling from Johnson are shown in Table 1.

Table 3. Work Traffic Flow Figures for Johnson

Johnson Workers' Travel Destination	Percentage of Johnson Workers
Lamoille County	45%
Chittenden County	19%
Washington County	16%
Franklin County	4%
Caledonia County	4%
Other	9%

Source: U.S. Census Bureau, Center for Economic Studies; http://onthemap.ces.census.gov/ (note, self-reported data from the US Census show a higher percentage of Johnson residents working within Lamoille County.)

According to the Vermont Department of Labor data, a significant source of jobs in Lamoille County is the Accommodations and Food Services sector. As of 2014, this sector provides 28 percent all private jobs in the county. This is nearly three times greater than the percentage of private jobs in this sector statewide (10.2%). In only one other sector, Construction, does the County exceed the state average (6.6% of private jobs in Lamoille County vs. 4.9% of private jobs statewide). Of particular note is the manufacturing sector, which accounts for only 5.0% of private jobs in Lamoille County, vs. 10.2% of private jobs Statewide.

In-town Employment

Johnson is a small town of 3,446 residents. Some residents work in town but, as the Table 3 above shows, the majority commutes to work. On the contrary, many people commute to Johnson for employment. In 2014, there were 1,101 in-town jobs in Johnson producing about $39 million in income, up from 963 jobs in 2009. Approximately 53% of those jobs were provided by educational institutions that include Johnson State College, Laraway Youth and Family Services and Johnson Elementary School. Other larger Johnson employers include the Vermont Electric Cooperative and the Vermont Studio Center.

Jobs available in Johnson pay among the highest average annual wages in Lamoille County. However, while in 2009 the jobs in Johnson paid the highest average wage in the County, in 2014, the average wage was the fourth highest. In the last five years, while the wages remained steady in Johnson, they increased in most other communities. Figure 2 compares the 2009 and 2014 annual average wage distribution throughout all ten County towns.

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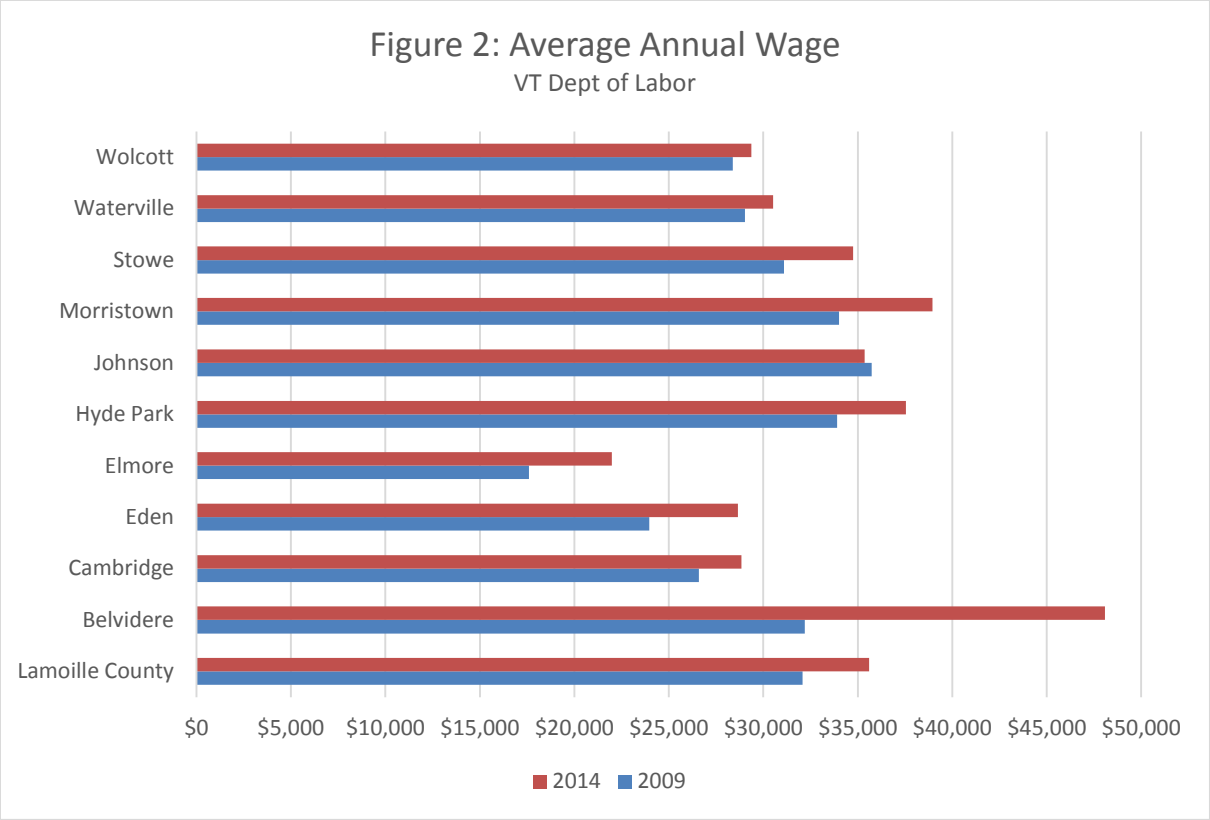

Note that the figures from Belvidere may be skewed due to the small number of jobs available in that town.

Johnson's Workforce

The VT Department of Labor data for 2014 indicate that 1,560 Johnson residents were employed in that year. A total of 100 persons or 6.2% were unemployed. The regional unemployment rate in Lamoille County in 2014 was slightly lower and averaged 5.2%. Table 2 shows trends in unemployment rates in the Johnson and Lamoille County between 2010 and 2014. (Note: Due to a high proportion of regional jobs in the service, recreation and construction fields, the rate of unemployment tends to seasonally fluctuate).

Table 4. Unemployment trends in Johnson and Lamoille County 2010-2014

	2010	2011	2012	2013	2014
Johnson	9.3%	8.8%	8.1%	6.6%	6.2%
Lamoille County	7.7%	7.1%	6.5%	5.6%	5.2%

Income

While in-town jobs pay among the highest wages in Lamoille County, median income of Johnson families (regardless of whether income earners work in Johnson or elsewhere) are among the lowest in the County. The income gap between Johnson and the rest of the County has been growing for the past 35 years. In 1980, the median income of Johnson families was almost at par with the median income of Lamoille County families. Thirty-five years later, the income

gap has grown to $20,000. The gap is even greater when comparing median family incomes in Johnson Village, where the median family income is $37,969.

Table 5. Median Family Income

	1979 (1)	1989 (1)	1999 (1)	2009 (2)	2014 (3)
Lamoille County	$15,766	$31,772	$44,620	$61,701	$62,101
Johnson (Town and Village)	$14,892	$27,270	$38,224	$47,625	$41,402
Gap	$874	$4,502	$6,396	$14,076	$20,699
Johnson Family Income as a % of the County Average	94%	86%	86%	77%	67%

(1) U.S. Census Bureau; (2) American Community Survey 5 year estimate for 2005-2009; (3) American Community Survey 5 year estimate for 2010-2004

Poverty

The American Community Survey 5 year estimate from 2010-2014 shows that 14.2% of Johnson families live in poverty, compared to 10.1% of families in Lamoille County. The poverty rate is significantly higher in Johnson Village, with 23.8% of families living in poverty.

Local Economic Development Efforts

Since the adoption of the last plan, the Village, the Town and numerous citizen groups have worked hard on planning and implementing projects to strengthen Johnson's economy.

- Johnson Village completed a $3.2 million downtown revitalization initiative locally known as the "Main Street Project". The goals of the Main Street Project were to elevate the role of the downtown as a commercial, social and cultural core of the entire community and increase the safety of all Main Street travelers. As a result, downtown Johnson features attractive streetscape amenities, an improved sidewalk network, new crosswalks, an improved parking layout, prominent streetlights, bike racks, park benches, sculpture pedestals, new tree alleys and public gathering spaces.
- The Johnson Sterling Market grocery opened on Main Street. The market is Vermont owned and located in the shopping plaza formerly occupied by the Grand Union.
- Johnson has been actively participating in developing amenities for the Lamoille Valley Rail Trail. We built a trailhead facility at the Old Mill Park, assisted in developing maps and a brochure for the trail and developed wayfinding signage highlighting the connection between downtown Johnson and the trail.
- Voters granted to the Selectboard an authority to enter into tax stabilization agreements with business and commercial property owners. Both the Village and Town voted to eliminate the Business and Personal Property Tax as a further incentive to attracting new business and retaining existing one.
- Efforts to identify and develop a parcel suitable for business, commercial or light industrial development have been ongoing. After a suitable parcel has been identified adjacent to Route 15, a conceptual design for the park as well as a market study to determine business demand have been completed. The market study recommended two business clusters with growth potential in Johnson: Agribusiness, Food Processing and Technology; and Energy and Environmental Services.

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- To support economic development, Johnson Village manages a loan fund that offers low interest building improvement and business loans. In 2017, the Town will also begin offering community development loans. The guidelines for the use of the loan funds are available at www.townofjohnson.com.
- Throughout the past five years several Main Street businesses closed and new businesses opened. Overall, Main Street Johnson remains a vibrant place and an attractive destination with a mix of unique small businesses. Several businesses, such as Johnson Woolen Mills, have been a staple of our downtown for decades. The new businesses include the Johnson's Sterling Market grocery, With Love Photography, The Dream Café, Johnson Barber Shop, Vermont Liquor Store and Subway. Marvin's Butternut Mountain Farm's Store underwent a complete renovation that both preserves the historical integrity of the building and contributes to a vibrant Main Street. Examples of the existing and new businesses outside of the downtown business district include Johnson Farm & Garden, The Forget Me Not Shop, The Foote Brook Farm, the Vermont Flannel Company retail store, the Red House sports clothing store, Manchester Lumber and Parker & Stearns building materials.
- The village business district continues to maintain its Village Center Designation status. The Designation helped Johnson expand economic opportunities and strengthen the vibrancy of the village center. Marvin's Butternut Mountain Farm's retail store took advantage of tax credits available to businesses within the designated district and completely renovated the store. Johnson's Sterling Market was awarded funding to purchase equipment for the new grocery. Main Street underwent thorough streetscape makeover thanks, in part, to state grants.
- Through the efforts of Johnson Works Community Organization, a public Wi-Fi zone was established in the downtown area.
- In an effort to maintain the historic character of Johnson Village and support the integrity of the Village's business district, a citizen committee drafted a Form Based Code for the downtown area. The proposed Code is currently being reviewed by the Planning Commission.

POLICIES

- Support the expansion and diversification of the Johnson's economic base in a way that respects the scale and character of the community and protects against sprawl.
- Support efforts that encourage the vitality of Johnson Village as the cultural, single family residential, commercial and economic hub of the Town. (Cross reference in Land Use Section).
- Encourage efforts that strengthen Johnson's economic viability through:
    - Establishment of a business/commercial/light industrial park of appropriate scale and design to increase the tax base, improve access to services, and improve employment and economic opportunities for Johnson and area residents.
    - Continued implementation of projects that capitalize on Johnson's artistic and educational assets represented by Johnson State College and the Vermont Studio Center's art programs.
    - Implementation of projects that enhance Johnson's physical infrastructure, tourism and recreation opportunities, visual attractiveness and quality of life.

Projects in this category include improvements to pedestrian, bicyclist and river access infrastructure.
    - Implementation of projects that will improve access to locally grown and produced foods; support agricultural producers in their efforts to produce and distribute food locally and generally strengthen agricultural and forest industries.
    - Implementation of last mile broadband initiatives that will bring high-speed internet connection to every household, business and institution in Johnson. Johnson's current broadband coverage is spotty. Reliable high-speed internet connections are limited to Village residents and residents living along major transportation corridors. It is vital that the broadband coverage is expanded and made available to everyone.
    - Branding and marketing of Johnson.
    - Establishment of home based businesses.
- Support initiatives that provide workforce investment training opportunities.
- Encourage the expansion of public transit service from Jeffersonville to Johnson. (Cross reference in Transportation section).

IMPLEMENTATION RECOMMENDATIONS

- Determine the feasibility of establishing a business/commercial/light industrial park at the Jewett land by the time the Town's option agreement on the purchase of the property expires in 2018.
- Design and implement solutions to better interconnect the Lamoille Valley Rail Trail and the Village Center. These solutions include new directional signs, placement of sharrow signs along Railroad Street, and signage promoting downtown Johnson at critical junctures of the Rail Trail and town roads.
- Expand the boundary of the Designated Village Center district to encourage revitalization, facilitate economic opportunities and strengthen the vibrancy of the village center.
- Assist citizen committees and groups that strive to enhance Johnson's economic base.

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NATURAL, SCENIC AND HISTORIC RESOURCES

LAND RESOURCES

Soils

The soil structure attributes in Johnson provide both opportunities and limitations for construction and agriculture. Depending on the physical and natural process that formed it, soils may have differing depth, composition, texture and layering. Soils also vary in how easily they absorb water and their load-bearing capacity. Soils that pose limits to development are often characterized by excessive slope, shallow depth to bedrock, high seasonal water, stability and high erosion potential. Soils also have qualities that make them productive for timber and agricultural products. The five main soil associations found in Johnson are described in Table 6.

Table 6. Major Soil Associations Found in Johnson

Association	Description	Uses/Limitations	Location
Adams/Colton/ Duxbury	Level to steep, excessively drained sandy soil.	Main source of sand & gravel. Steeper areas in woodland. Less steep used for crops and home sites.	Along Lamoille and Gihon Rivers.
Lyman/Tunbridge	Deep, level to steep, well drained to somewhat poorly drained loamy.	Woodland w/farming on lower slopes. Development limited by depth to bedrock & slopes.	Northern uplands & mountains.
Berkshire/Marlow/ Peru	Deep, level to steep, well drained to somewhat poorly drained loamy soil.	Cropping and trees. Pan & slope limit for development. Suitable for wildlife habitat, recreation, woodland.	Across portions of southern uplands and Johnson Village.
Udifluents/Ondawa/ Rumney/Podunk	Deep, level excessively drained to poorly drained loamy soils.	Hay, crops & trees. Limited by seasonal high water table and flooding.	Lamoille River floodplain at Cambridge town line.
Boothbay/Salmon/ Swanville	Deep, level to steep, well drained to somewhat poorly drained loamy soils.	Used mainly for cropping. Limitations are slow permeability, slope and wetness. Suitable for wildlife habitat & woodland.	From East Johnson south into Hyde Park.

Source: USDA Soil Conservation Service. Soil Survey of Lamoille County, Vermont 1981.

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Forest Resources
The dominant land use in both Johnson and Lamoille County today is forest. Forests benefit the town and the county by providing habitats for numerous game and non-game woodland animals, forest products from timber to maple syrup, jobs both in the woods and the mills, protection of our valuable water resources, and contrast upon the landscape. Forestry is a large part of Johnson's heritage, and it continues to play an important part in shaping both the town's character and its economy.

Agriculture
Farming remains an important part of the economy, landscape, and cultural heritage of Johnson. Once mainly a dairying community, Johnson farms now also produce crops, vegetables, turf, beef cattle and veal. Most of the prime agricultural soils in town are being farmed by either full time or part-time farmers, with the noted exception of the farmland converted to residential development on the Johnson Plains.

According to estimates from the Vermont Agency of Agriculture, Food, and Markets, there are 9 farms in town which provide over 50% of the owner's annual income. 2010 Census figures indicate that 12 people were employed in farming, fishing, and forestry occupations. Note that these figures understate the extent to which agriculture impacts Johnson, as they may not account for part-time farmers or individuals employed in industries that support agriculture (such as agricultural equipment sales/repair and agricultural related transportation).

Use Value Appraisal Program
The Use Value Appraisal (UVA) Program was established by the Vermont Legislature in 1977 in recognition that the high tax burdens placed on farm and forest lands was contributing to the rapid development of prime agricultural and forestry lands across the state. The UVA Program allows farm and forest lands to be taxed on their resource production value rather than their value for development purposes.

Gravel
Lamoille County is one of the most gravel rich areas of the state. It is also one of the fastest growing. Since gravel is a non-renewable resource, it is important to plan for its wise use. The Lamoille County Planning Commission completed a study in 1989 that identified existing gravel pits and areas of likely gravel deposits. According to that study, there were 39 gravel pits in Johnson, of which 12 were active, 8 were inactive and 19 had been reclaimed. The approximate locations of sand and gravel are identified in the Surficial Geology Resources map.

Talc resources
Underground talc mining in Johnson ended in the mid 1980's but the extent of the remaining talc deposit and its economic viability today is uncertain at best.

TOPOGRAPHY

Topographic information is important for planning future land use, transportation, and public facilities and services. Topography will influence accessibility, will provide natural boundaries

between areas, and will often determine land use. The 30,656 acres in Johnson cover a diverse topography.

Some general guidelines for assessing slope limitations include:

0-3%	Suitable for most development but may require drainage improvements
3-8%	Most desirable for development, least restrictions
8-20%	Suitable for low density housing on large lots with some consideration for erosion control and runoff
21-30%	May be developed with careful siting and off site wastewater treatment
Over 30%	Avoid all construction. Natural vegetation generally required to prevent soil erosion

Johnson's topographic limitations map illustrates general areas with slopes less than 20%, areas where slopes are between 20 and 30% and those above 30%. The suitability of any particular site for development, must be evaluated considering the interaction of slope with other features such as soil type and vegetation with the proposed land use.

WATER RESOURCES

Water resources take on a variety of forms and functions. They provide rivers and lakes upon which to boat, fish and swim, groundwater to drink, and wetlands to store floodwaters and filter natural and manmade contaminants. Water resources provide numerous habitats for a variety of aquatic and riparian plant and animal communities, and support numerous economic activities such as fishing and boating.

Water resources also serve as repositories for runoff and seepage including pesticides, herbicides, sediments, and leaching landfills, septic systems and underground storage tanks. These contaminants kill fish and plants, destroy existing and potential drinking water supplies and preclude recreational activities.

Rivers and streams

The Lamoille River flows westerly through the Johnson landscape for about 7.9 miles. The Lamoille originates at Horse Pond in Greensboro and flows into Lake Champlain at Milton. From its headwaters to the mouth, the river descents approximately 1,200 feet and drains a 706 square mile watershed.

All the streams and rivers in Johnson are part of the Lamoille River drainage basin. Geologic features such as oxbows, potholes and two sets of waterfalls highlight the Johnson section of the Lamoille. The biggest tributary to the Lamoille in Johnson is the Gihon River. The Gihon River played an important role in the history of Johnson. The first generating plant in town was located on the falls just north of the Power House Bridge. Johnson's historic mill economy was literally powered by the Gihon in Johnson Village.

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Floodplains
Floodplains provide important ecosystem functions such as floodwater attenuation and also provide important wildlife habitat. A more thorough discussion of floodplains can be found in the "Flood Resiliency" Section of this Plan.

Significant natural features
The Gihon and Lamoille Rivers help create the essential character of Johnson Village. The picturesque rivers can be admired from many scenic locations.

Dog's Head Falls is located about 1 mile southeast of Johnson Village and consist of six-foot high twin falls, two large pools for swimming, rocks and outcrops for jumping, picnicking, and sunbathing. An impressive bedrock outcrop forms the "dog's head". Sloping Falls just downstream is another well-used recreation area. It consists of a fifty-foot long cascade, sculptured rocks, undercut ledges, swift current, and several pools. The undertow in the upper area makes it too dangerous for swimming but the lower pool is enjoyed by swimmers.

Ithiel Falls is a picturesque section of the Lamoille River located about 2.5 miles west of Johnson Village and can be accessed from Hog Back Road. The entire area of Ithiel Falls is considered for the purpose of this plan a significant natural feature. This area consists of rapids, pools and runs beginning with 150-yard long upper rapids in a wooded ravine with occasional rock walls that reach up to 30 feet high. Following a large pool with submerged boulders there is a stretch of rapids with interrupted slanting rock walls up to 20 feet high followed by a large pool in a series of runs, islands and pools. The Ithiel Falls area ends where the Lamoille resumes as a single channel. The Long Trail crosses the Lamoille via a pedestrian suspension bridge within this significant natural area. The area is widely used by both boaters and fishermen.

There is an island in the river below the long trail crossing which was identified by the Agency of Natural Resources as a Significant Natural Community in 1997. The habitat on this island is described as Sugar Maple-Ostrich Fern Riverine Floodplain Forest and its significance is due to the isolation of the island keeping the natural forest intact with no apparent human disturbance.

In 2013, the Vermont River Conservancy conserved "Journey's End," a spectacular swimming hole and waterfall carved in the bedrock of Foote Brook. Conserving this land permanently protected public access to the Journey's End swimming hole, provided access for anglers to a 2,500 foot reach of Foote Brook renowned for its high quality trout habitat, and conserved 25 acres along Foote Brook containing deer yards, songbird habitat, and a forested buffer which protects the ecological values of Foote Brook.

In 2015, continuing its partnership with Vermont River Conservancy, the Town was able to acquire and conserve a two-acre parcel on the Gihon River formerly owned by the Beard family. With approximately 600 feet of river frontage, this parcel possesses beautiful shoreline, waterfalls, and swimming spots along the Gihon River and has been a popular recreation destination for decades.

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Riparian habitats
Plant life such as trees, shrubs, grasses and herbs along stream banks and river corridors serve to provide both food and shelter for a great many wildlife species. According to a 1986 study on Vermont's rivers, several of Vermont's wildlife groups are highly dependent on riparian areas for their habitat needs. The Lamoille River and Smith, Foote, Joe, Waterman, Belding Pond and French Hill Brooks were all noted in the 1986 study as important deer habitats.

Lakes and Ponds
Belding Pond and French Hill Collector Reservoir are located near the Dry Ridge in the southwest section of town. According to the 2000 Johnson Utility and Facility Report, there is no public access to ponds in Johnson for recreational use.

Water Quality
Vermont's waters are classified according to established goals to be attained or minimum standards to be maintained, depending upon the present quality of a particular section of water. The Agency of Natural Resources works to implement activities that restore, maintain or protect the management goals. Until recently, the classification system included two classes A and B. Class A waters were divided into two subclasses: A(l) and A(2). As part of the Water Quality Standards revisions in 2000, the system was changed to allow Class B waters to be divided into three management types: B1, B2 and B3.

Presently, in all basins, waters above 2,500 feet in elevation are classified A(l) by Vermont statute. The management objective for A(l) waters is to maintain their natural condition. Waters used as public water supplies are classified A(2). All the remaining waters are class B waters. A simplification of the B1, B2 and B3 designations would be to say that the spectrum from B3 to B2 to B1 is described as representing "good", "better" and "best" aquatic conditions. All Class B waters must still support the designated uses described in the Vermont Water Quality Standards for Class B waters, which include, among other uses, suitability for aquatic life, boating, fishing, swimming, and drinking with treatment.

On August 16, 2004, the Town Select Board passed a resolution requesting that all streams and rivers in Johnson be classified as B1 waters, with the following exceptions: 1) The mainstream of Lamoille; 2) The brook through Paul McLure's farm, which should be classified B2; 3) The Gihon River downstream from School Street Bridge to the confluence with the Lamoille, which should be B2, 4) Smith Brook below Route 15 to the confluence with the Lamoille River should be B2; and 5) Waters currently classified as A1 or A2.

In 2015, the Vermont Legislature passed the “Vermont Clean Water Act,” aimed at significantly reducing the amount of phosphorous entering Lake Champlain. Compliance with the Act will likely require changes, some of them costly, in the way Johnson manages its roadway system and could require expensive upgrades to wastewater treatment facilities. Such upgrades would be extremely expensive and have minimal impacts on phosphorous entering the watershed. Johnson strongly urges the US EPA and Vermont Agency of Natural Resources to consider other, more cost effective options before mandating such upgrades.

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Restoration of streambanks and floodplains is one strategy to reduce phosphorus bound to sediment from entering the watershed. Detailed River Corridor Management Plans have been developed for the Lamoille River, Gihon River, and Foote Brook. These plans and assessments identified and prioritized restoration projects that will reduce sediment and nutrient loading to downstream receiving waters such as the Lamoille River and Lake Champlain, will reduce the risk of property damage from flooding and erosion, and will enhance the quality of in-stream habitat. Many of these projects involve conservation and re-vegetation of riparian areas. Since many of these areas are privately owned property, coordination and collaboration with property owners will be especially important to implement these projects. These plans also identified undersized bridges and culverts that may be constricting the natural flow of water. More information on these plans can be found in the "Flood Resiliency" Section of this Plan.

Wetlands

The term wetland is used to refer to areas that are commonly referred to as swamps, marshes, bogs, fens or other such names. Wetlands serve a number of important functions, including storm water retention, erosion control, ground water recharge, and wildlife habitat. Wetlands share three basic characteristics:

1. The presence of water at or near the ground surfaces;
2. The presence of water dependent plants occurring on site; and
3. Common types of soils that have formed as a result of the presence of water.

The U.S. Department of the Interior has mapped wetlands, and each town has a set of National Wetlands Inventory Maps. These maps were made using aerial photos. They are useful for assessing the general character of a particular area, but are not accurate enough to determine the nature of a particular property without a site visit.

Vermont's wetland regulations are based upon the National Wetlands Inventory. They designate all of the wetlands identified by the inventory in Johnson as Class II, meaning the functions they serve - either alone or in conjunction with other wetlands in Vermont are protected by a 50 foot vegetated buffer between the wetland and any adjacent land development. Class I wetlands are those of such high quality and important function that they are considered of statewide significance. In 1992, there were no wetlands in Johnson classified as Class I.

Groundwater resources

Groundwater is the source for over 90% of the drinking water for rural communities in Vermont. It is replenished through rain and surface waters which percolate through the soil. Any activity that introduces contaminants directly into the ground (such as underground storage tanks, septic disposal fields, abandoned wells, junk cars and agricultural activities) can affect groundwater quality. Since surface waters may also travel underground, surface water quality may affect groundwater quality as well.

Groundwater is an important source of drinking water for Johnson residents. For homes outside of the Village Water & Light service area, groundwater is the primary source of drinking water.

Public groundwater sources in Vermont are assigned a Source Protection Area (SPA). SPAs are defined as the surface and subsurface areas from or through which contaminants are reasonably

likely to reach a public water system source. The state Agency for Natural Resources (ANR) Water Supply Division is responsible for the Vermont Source Protection Program.

There are five Source Protection Areas in Johnson. The first is an area defined by a 3,000-foot radius around the Wescom Trailer Park wells. The second is a hydro geologically delineated area around the Nadeau Well, which is supposed to be a back-up supply well for the Village Water Department but is used daily to meet peak demand. The third and fourth protection areas are in the northeast comer of town, and are delineated for the protection of the North Hyde Park Fire District #1 and Mountain View Mobile Home Park. The fifth source protection area surrounds a new well build in 2006 and serving the Johnson Village water system. The well is located just west of Johnson Village off Route 15 below the Highland Heights Mobile Home Park and serves as a permanent and primary source.

WILDLIFE RESOURCES

Fisheries

The Vermont Guide to Fishing, published by the Vermont Fish & Wildlife Department, lists the Lamoille River as supporting all warm and cold-water sport fish found in state with the exception of lake trout and smelt. The upper reaches of the Gihon River in Johnson support rainbow, brown and brook trout.

The Vermont Department of Fish & Wildlife owns two sections of stream bank for public and fishing access on the Lamoille River in Johnson. The first is 11 acres on the southerly bank of the river from the Hyde Park line to the island below Dog's Head Falls. The second section is approximately 0.2 acres on the north bank of the Lamoille on the Johnson/Hyde Park line.

Deer wintering areas

Deer in Vermont live near the northern limit of white-tailed deer range in eastern North America; forcing deer to use very specific winter habitat when severe climactic conditions become a threat to the animals' survival. The availability of quality wintering areas is the limiting factor for deer in most of Vermont. It affords necessary and invaluable shelter which minimizes energy expenditures and provides for energy conservation by deer, thus, maximizing their chances of survival.

Since only about 6% to 8% of Vermont's land base is deer wintering area, the ability to recognize and manage these critical habitats is necessary to ensure the future well-being of the state's deer herd. Valuable yarding areas are lost each year to road construction, housing, and other forms of development. Additional threats are over-cutting of timber and pest outbreaks, such as spruce budworm. Each lost wintering area results in great pressure on the remaining areas of winter range. Wintering areas do not change significantly between years and can be used by generations of deer over several decades if appropriate habitat conditions are maintained.

Johnson has a larger proportion of mapped deer wintering areas than most other Vermont towns. A little over 1% of the land area in Johnson is mapped deer wintering area which amounts to approximately 3300 acres. Deer wintering area maps are available from Vermont Center for

Geographic Information (http://www.vcgi.vermont.gov) as a GIS layer, or they can be viewed online through the Agency of Natural Resources Atlas (http://anrmaps.vermont.gov/websites/anra5/). Maps for specific areas can also be printed out by a Vermont Fish and Wildlife Department District Office.

Bear habitat

The best habitat for black bears in Vermont is a mixture of coniferous trees, hardwoods, wetlands, and variation in terrain. Because they need dense cover to escape danger, the wary and elusive black bears prefer rough and wooded habitats. The habitat should also have a good water supply nearby. Bears require large areas of uninterrupted forestland for breeding. They also require travel corridors to move between resources within their home ranges. These areas need additional protection especially as forested areas may be subdivided and developed. The large proportion of forested area in Johnson provides good habitat for black bear.

Core Forest Habitat

While some species such as deer can accommodate human populations, many others rely on large blocks of unfragmented forest for their mating, nesting, feeding, and denning habitats. These areas are referred to as "Core Forest Habitat" and generally consist of forestlands that are at least 100 meters (328 feet) from significant development such as roads, houses, and active farmland. Species that rely on such areas include hawks, owls, songbirds, fisher cats, moose, bobcats, and black bears. Mammals such as deer, moose, bear, bobcat, fisher cats, and coyote may require very large contiguous forest acreage up to 600 to 7,500 acres. Fragmentation of large forest blocks through subdivision and development diminishes species' ability to access core habitat functions and may result in a change in species' composition from species such as moose, bears, hawks, owls, and bobcats, to other species such as pigeons, sparrows, starlings, and skunks. Blocks of core forest habitat are found throughout Johnson with the largest blocks found at higher elevations identified as "Forest" areas on the future land use map.

Rare, Threatened and Endangered species

The term endangered generally refers to species whose continued existence as a viable component of the state's wild fauna or flora is in jeopardy. A threatened species is defined as a species whose numbers are significantly declining because of loss of habitat or human disturbance, and unless protected will become an endangered species.

Rare plants and animals are important for a variety of reasons. Some are indicators of unusual habitats or of colder (or warmer) climates in Vermont's distant past. Some serve as indicators of environmental quality. Some species may provide compounds for medicines or agricultural or industrial products. Finally, some are attractive and add beauty to the natural landscape. Many uncommon species will disappear if not recognized and given some form of protection.

Invasive Species

Non-native, invasive species can cause irreversible impacts on ecosystem health and biodiversity. Three non-native insects which currently threaten Vermont are the emerald ash borer, Asian longhorned beetle, and hemlock wooly adelgid. A number of exotic insects and diseases, such as beech bark disease, butternut canker, and gypsy moth, are already established statewide.

Invasive plant growth can lead to loss of native flora and fauna. Japanese Knotweed is one particular aggressive invasive species that is becoming increasingly prevalent in Johnson. Colonies of Japanese Knotweed can quickly overtake stream banks, empty lots, construction sites, and back- yards. When the plant is disturbed above-ground, a hormone in the root stimulates the growth of new shoots – up to 6 feet away from the "mother" plant. A new colony of knotweed can be established by a chunk of root or stem no larger than a human fingernail. Knotweed quickly outcompetes native vegetation, contributes to soil erosion, especially along stream banks, and has been known to grow through and damage infrastructure such as bridge abutments.

Conserving genetic diversity within native host species increases potential resiliency in light of invasive pests. Several actions are needed to address non-native invasive species. Among them are preventing new introductions through common pathways such as firewood, nursery stock, and other non-local products. While there are no official State regulations related to firewood used at private homes, the Vermont Department of Forests, Parks, and Recreation recommends that firewood not be transported more than fifty miles. Other important actions needed to address non-native species include preserving the genetic resources of native species that may be impacted by invasive species; working with partners to develop tools for detecting, identifying, evaluating, and managing invasive pests; and responding rapidly if infestations are detected. Local citizens and the Johnson Conservation Commission can play a key role in preventing the spread of invasive species.

Johnson critical habitat map

The Vermont Non-game and Natural Heritage Program, in the Fish and Wildlife Department, has an ongoing program of identifying and mapping special natural features of significance in each town. These maps show the approximate boundaries of known deer wintering areas and known locations of rare plants, animals, significant wildlife communities or state natural/fragile areas.

The 1991 revised Critical Habitat Map for Johnson in the back of this plan identifies the approximate boundaries of known deer wintering areas and indicates general areas of black bear habitat. All data is now available online at the Agency of Natural Resources atlas at http://anrmaps.vermont.gov/websites/anra5/.

A detailed natural resources inventory is needed in order to better understand the full array of wildlife habitat and travel corridors in Johnson.

AIR QUALITY

The United States Environmental Protection Agency sets National Ambient Air Quality Standards (NAAQS) which set acceptable levels of various types of air pollutants. Areas whose air meets these standards are considered "in attainment," while areas that do not are considered "out-of attainment." Vermont is currently the only state in which no area is currently designated as non-attainment for the NAAQS. However, Vermont is located in the Ozone Transport Region, and as such must meet additional requirements to reduce levels of ozone and ozone forming pollutants.

Chittenden County is very close to being out of attainment for ozone and fine particulate matter. Despite its rural nature, Lamoille County occasionally experiences "bad-air days" due to high levels of fine particulate matter, especially in winter months when "cold-air inversion" traps emissions in low lying valleys. Local sources of ozone and particulate matter come primarily from transportation and wood combustion, though a good quantity of this and other pollutants migrates to Vermont from other areas of the country. The exact proportion of air pollution generated locally is difficult to quantify. If the County were designated as "non-attainment," the State would need to develop regulations that will require the area to take additional actions to reduce emissions of target pollutants.

As noted above, two primary sources of local air pollution include wood stoves and automobiles. Newer wood stoves are now mandated by the EPA to contain pollution control equipment that significantly reduce particulate emissions. Replacing older wood stoves and furnaces will have a positive impact on air quality over time. Automobiles are a second local source of air pollution. Strategies such as reducing driving miles, cleaner burning engines, car pooling/ride sharing, expanding transit options serving Johnson, and using alternative-fuel vehicles all would reduce automobile pollution. Increasing local employment opportunities may also reduce the need to commute.

SCENIC AND HISTORIC RESOURCES

Johnson is blessed with its location, beauty and natural resources. Sense of place, determined by historic features, geography of the land and availability of recreation and cultural opportunities are among key determinants for why people choose to live in or visit Johnson.

Among the key scenic resources are scenic backroads that include Hog Back Road, Plot Road, Clay Hill Road and Mine Road; scenic waterways such as Lamoille and Gihon rivers and swimming holes located along Foote Brook and Gihon; and scenic views that include Prospect Rock, views along the Rail Trail, and views visible from backroads such as the intersection of Clay and Ober Hill Roads, the intersection of Upper French Hill and Waterman Roads or the intersection of Plot Road and the top of Foote Brook Road. Highly valued are aesthetic and pristine natural attributes of the Laraway and Butternut Mountain Ranges as well as scenic, intact views of the Sterling Mountain Ridge, especially as viewed from the Route 15 and Route 100C corridors. The Laraway, Butternut and Sterling Mountain Ranges are scenic resources that shall be preserved.

In 1981 the entire town was inventoried by the state Division of Historic Preservation for the Vermont state historic registry. Town-wide, approximately 170 structures were noted for their statewide historic significance. Of these, 125 structures are located within the Johnson Village Historic District. The two remaining covered bridges in Johnson- Power House and Scribner- are listed on the National Register of Historic Places.

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POLICIES

- Support efforts that protect long-term viability of agricultural and forest lands; implement sound forest and agricultural management practices; and the use of locally grown food products.
- Protect resources by restricting commercial and residential development:
    - In fragile areas, i.e. areas with topography limitations, soil limitations, areas prone to flooding and wetlands
    - On land 1500 feet above sea level. Forestry, agriculture, recreation or primitive camps can be considered appropriate, providing the proposed use does not adversely impact the land or public water supplies
    - On class III or higher and development roads that are above 1500 feet, or on slopes greater than 25%
    - That would negatively impact bear and moose habitats, winder deer ranges and critical habitat areas.
    - On Laraway, Butternut and Sterling Mountain Ranges for energy generation through wind towers (Cross reference in Energy Section).
- Discourage road construction of town highways, class III roads, and private development roads and driveways that are above 1500 feet or on slopes greater than 25%. (See also Transportation section)
- Encourage land use measures that will protect wilderness areas, rare, threatened and endangered species.
- Support efforts that monitor the water quality of Johnson's rivers and streams; maintain or improve the quality of water resources; and take actions to ensure that our rivers and streams are classified and developed in accordance with the Select Board's resolution from August 16, 2004 (see page 20 of this plan).
- Protect the quality of public drinking water supplies and restrict development in Source Protection Areas.
- Provide for the wise and efficient use of Vermont's natural resources and facilitate the appropriate extraction of earth resources and the proper restoration and preservation of the aesthetic qualities of the area.
- Within Johnson Village, support private and public activities and uses that are oriented to the Lamoille and Gihon riverfronts. This Plan recognizes the importance of the rivers in the Village's history and their continued contribution to the scenic, economic and recreational opportunities in the community.
- Encourage initiatives that conserve and promote the area's historic and cultural assets.
- Encourage initiatives that restore, preserve and continuously use historic structures, especially in Johnson Village

IMPLEMENTATION RECOMMENDATIONS

- Develop a thorough Natural Resources Inventory of Johnson.
- Identify lands desirable for conservation and determine what actions should be taken to conserve identified lands.

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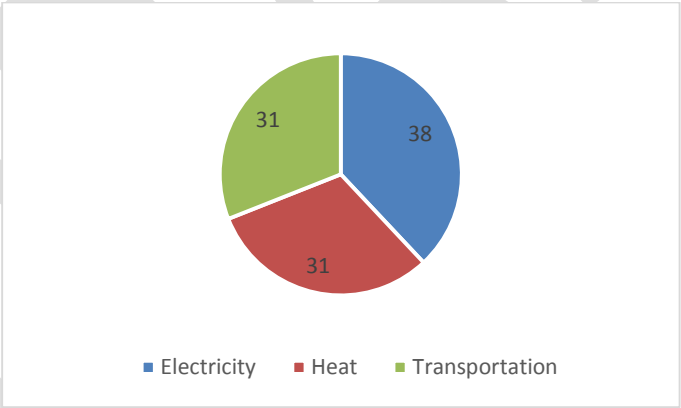
ENERGY

Energy for light, heat, transportation, and the operation of equipment is crucial for the local economy to function and thrive. Energy plays a vital role in our everyday lives and is essential for the well-being of the community. Substantial dependence on any one source or type of fuel for local energy needs can leave the population vulnerable to wide market swings in energy costs.

According to the U.S. Department of Energy's Energy Information Agency, approximately three quarters of Vermont's energy needs are met by petroleum-based fuels, natural gas, and nuclear energy sources. Renewable energy sources (hydro, biomass, wind, and solar) account for nearly a quarter of Vermont's energy supply (See Figure 3 below).

While many of the factors that determine the availability and cost of fuels are beyond the control of the community, there are measures Johnson can implement to influence the town's energy future. These measures may include supporting the development of diverse energy sources, the use of renewable energy, and implementation of conservation measures including promoting energy efficiency in proposed developments and existing structures. This chapter will outline energy topics as they relate to our community, and describe opportunities for efficiency and conservation at the local level.

Figure 3: Vermont Energy Consumption by Source



Source: Vermont Comprehensive Energy Plan, 2011

Electricity

According to the 2011 Vermont Comprehensive Energy Plan, electricity accounts for 38% of energy consumption across the state. Presently, Vermont is served by eighteen different electricity providers, which include fourteen municipally owned utilities, three member owned cooperatives and one shareholder corporation. Each utility services an exclusive franchise area, with oversight from the Vermont Public Service Board (PSB), a quasi-judicial entity that supervises the rates, quality of service and overall financial management of the state's public utilities.

Johnson Village Water and Light Department
The Village of Johnson Water and Light Department is a municipal utility that provides electricity to approximately 941 customers in an area associated with, but slightly larger than Johnson Village. The customers range from municipal, institutional, residential, and commercial uses. According to Johnson Water and Light Department 2014 electrical rates, Johnson State College is the largest user of the electric system, accounting for approximately 30% of system load. Residential users account for 38% of electrical usage and the remaining electrical usage is consumed by commercial users (26%) and municipal facilities and streetlights (6%). The system has very high reliability records and has historically had some of the lowest rates statewide.

The Village Trustees are responsible for oversight and operations of the Water and Light Department, and employ a public works foreman and two electrical linemen to maintain the transmission and distribution system. According to the 2014 Annual Report, the largest electrical expenses are derived from the purchase of power (63% of electrical expenses) and administrative costs (20%). Billing and customer service inquiries are coordinated through the Village Clerk's office.

The Village Water and Light Department does not own or operate any electric-generating capacity. Rather, since around 1956, the Village has been purchasing all of its electricity from outside sources. The Village is a member of the Vermont Public Power and Supply Authority (VPPSA) which is a Joint Action Agency serving most municipal electric utilities in Vermont. VPPSA aggregates power supply needs of the members and secures the power from the market on behalf of the member municipalities, at a cost savings. With changes in the power supply market, membership in VPPSA has become essential to the continued operation of municipal electric departments all over the state.

Other Electric Service Providers
In addition to Johnson Village Water and Light, three other utilities have franchise areas in Johnson: Vermont Electric Cooperative (serving broad areas north and south of the Village's franchise area), Hyde Park Electric Department (serving a narrow corridor on the southeastern border), and Morrisville Water and Light (serving a very small area on the extreme north eastern border.

Heat
According to the Vermont Comprehensive Energy Plan, demand for thermal energy accounts for approximately 31% of statewide energy consumption. Across Vermont, a vast majority of homes are heated with petroleum based products. Johnson follows this pattern by generating 63% of its residential heat from fuel oil, liquid propane, kerosene and natural gas; all of which are petroleum-based. See figure 4 below for a break-down of heating sources used in Johnson. Recent volatility of petroleum prices and the adverse environmental impacts associated with burning fossil fuels, pose serious challenges to the sustainability of this heating profile.

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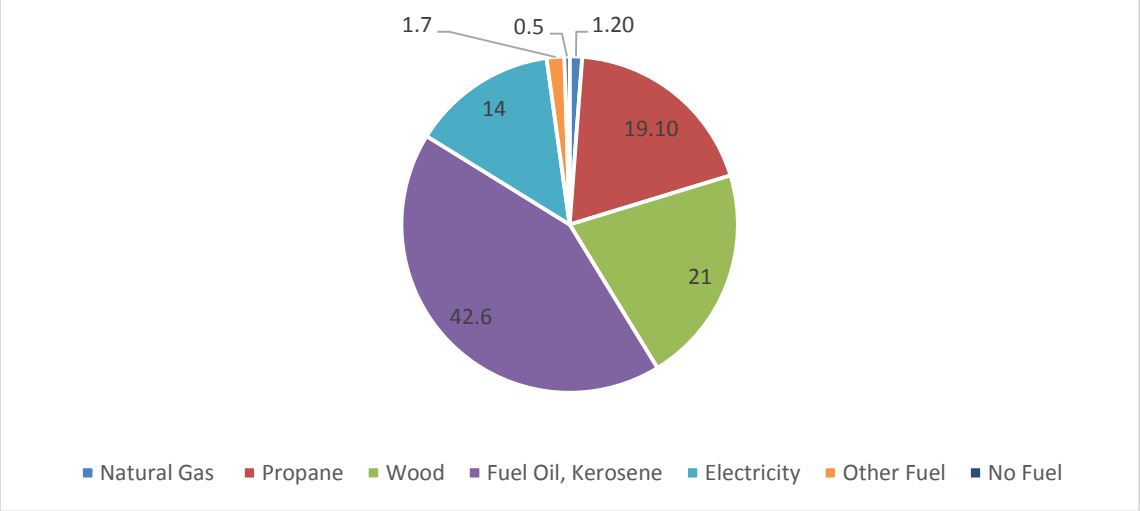
Figure 4: Johnson Household Heating Fuel Usage by Source



Source: American Community Survey, 2013

Transportation

Transportation accounts for approximately 31% energy consumption across the state. Due to the rural nature of the region, transportation in Johnson and throughout Vermont is highly dependent on the personal automobile. According to estimates from the Census Bureau's American Community Survey (years 2009-2013), approximately 69% of Johnson residents commute to work alone, with an average daily commute of more than 22 minutes each direction.

A more sustainable approach to work commute can be observed in Johnson Village. Thanks to the Village's compact build-out, a relatively sizeable proportion of workers, approximately 18%, walk to work. Meanwhile, roughly 1% bike to work. Additionally, many Johnson State College students, Vermont Studio Center visiting residents, and senior citizens do not own a car and frequently walk or bike to many village destinations. The Town and the Village are mindful of the transportation needs of all people, including those who do not have a car and - when available - prefer to utilize alternative means of transportation such as walking, biking, or carpooling. Currently, approximately 7% of Johnson residents carpool to work. Johnson has been steadily expanding its pedestrian and bicyclist infrastructure, enhancing transportation connections to off-road transportation corridors such as the Lamoille Valley Rail Trail, and encouraging the expansion of public transit. Examples of recent improvements of pedestrian infrastructure are outlined in the Transportation section.

Local and Renewable Energy Sources

Biomass

One locally renewable source for heat in Lamoille County is wood. According to 2013 American Community Survey data, 21% of Johnson residences use wood as a primary source of heat. While the American Community Survey does not survey secondary sources of heat, data from the Vermont Department of Public Service indicates that 43% percent of homes in Vermont have a secondary heat source, most of which are fueled by firewood (68%) or wood pellets (18%). It is likely safe to assume that this is true of Johnson as well.

On a larger scale, Johnson Elementary School has a wood-fired system fueled by wood-chips. Given the forested nature of Lamoille County, real potential exists for taking a greater advantage of this local resource for residential and commercial heating as well as energy generation.

Solar Power

Another source of renewable energy that village residents and businesses can consider for electricity needs include solar power. According to the Vermont Renewable Energy Atlas, there are five ground-mounted solar photovoltaic systems and five roof-top solar PV arrays in Johnson. In recent years, the use of solar for electricity has become increasingly popular at educational institutions in Johnson. In the fall of 2014, Johnson State College installed a one-acre, 150 kWh solar panel array on campus. The solar array's annual production was estimated at 200,000 kWh; enough power to meet the electricity needs of two buildings on campus (McClelland and Martinetti halls). There is great potential for additional roof-top solar arrays and ground-mounted systems, where adequate open space is available within Johnson. Areas of town with the greatest solar resources and potential include northeast of Route 15 and west of 100c (see map for existing and potential solar in Johnson).

Renewable energy investments, especially in the case of solar power, are often paid off in several years by cost savings as well as revenue created by selling net energy to a utility for distribution on the Vermont power grid. Recent legislation (H.446, Act 45) has improved the profitability of smaller net systems which creates a greater incentive to invest locally, in small scale renewable energy generation.

Wind power

Wind power can be another source of renewable energy. Small-scale, roof-top wind power systems may be feasible among households living on hillsides within town. Limited small-scale commercial and residential wind potential in the Town primarily exists on ridgelines-such as the Sterling Range to the south and the Laraway and Butternut mountain ranges to the north (see map for potential wind power in Johnson).

The use of wind turbines for commercial energy production is controversial and continues to be a topic of much discussion in Johnson and the surrounding communities. This is due to the fact that ridgelines that are most suitable for wind energy also contain important wildlife habitat and intrinsic scenic value, and wind energy has the potential to negatively impact both. This plan discourages the erection of wind towers on Sterling, Laraway and Butternut Mountain Ranges as these ridges are scenic resources that shall be preserved.

Hydro Power

Historically, the Town of Johnson received a notable amount of its power for electricity from hydro power. The former hydro plant was located along the Gihon River just upstream from School Street and the Power House Covered Bridge. Today, the prospect of restoring hydro power operations in the Village may not economically viable as restoration costs would far exceed alternative local power generation solutions, such as solar arrays. Potential may exist to build "micro-hydro" power generation facilities. Micro-hydro facilities are growing in popularity in Vermont and in Lamoille County, a permitting process is underway to implement the hydroelectric project on the Kelley River at the Laraway sawmill site in Waterville.

Siting Energy Projects
Before implementation of local energy projects, the feasibility of these approaches should be assessed both for cost effectiveness, site potential, impacts to natural, scenic and working landscapes, and neighboring property owners. All siting of proposed power generation systems should follow proper procedures as outlined by the Vermont Public Service Board in Section 248. Information on the Section 248 process is available at www.psb.vermont.gov/. When siting wind turbines, appropriate safety and noise distances should be measured from a property line to the turbine(s). Additionally, safety distances must be sufficient to ensure sound levels will not exceed 45 decibels outside of neighboring homes, as required by the energy project's Certificate of Public Good issued by the Vermont Public Service Board. Critical wildlife habitat should be avoided when considering locations for proposed renewable energy systems. If such development occurs, service and access roads should utilize existing woods roads and trails in order to limit the amount of forest fragmentation, and clearing around turbines should be limited to what is necessary to provide for safe operation of the facility.

Efficiency & Conservation
In addition to expanding its portfolio of renewables, Johnson can reduce its overall energy footprint by placing a greater emphasis on energy efficiency and conservation. At the local level, energy conservation can be achieved by promoting energy conservation techniques for residents and businesses, introducing energy efficient measures to municipally owned buildings and planning for development patterns that minimize energy demands.

Energy Efficiency in Residential and Commercial Buildings
Vermont has long been considered to be at the forefront of promoting energy efficiency, through the efforts of Efficiency Vermont and other public, private and non-profit organizations. Established by the Vermont legislature in 1999, Efficiency Vermont is the nation's first ratepayer-funded energy efficiency utility, providing valuable information on efficiency, conservation, rebate programs and other incentives to the general public. Property owners interested in implementing energy conservation measures can also apply for low interest loan funds from the Johnson Village Revolving Loan Fund. The loans are made for the installation of efficient heating systems, insulation improvements, or replacement of older windows with newer efficient models. The guidelines for applying for a loan can be found at www.townofjohnson.com.

To ease the cost of residential renewable energy and efficiency projects several towns implemented PACE (Property Assessed Clean Energy) Financing Districts. Johnson currently does not have a PACE district and the Planning Commission would like to encourage the Selectboard and the Village Trustee Board to study the PACE concept and consider its implementation in Johnson. PACE financing effectively allows property owners to borrow money to pay for energy improvements on a property, including energy efficiency/conservation retrofits as well as on-site renewable energy generation. The amount borrowed is typically repaid via a special assessment on the property's tax bill over a period of up to 20 years. As a result, the loan runs with the property, rather than the individual. Due to the fact that PACE financing is administered through the local property tax system, municipal approval is needed to create a PACE District.

Commercial and residential property owners may also apply for financial incentives through Efficiency Vermont's Energy Star Home Performance and Building Performance programs. Through the Home Performance Program residents can receive up to $2,000 per household to assist in financing energy efficiency projects. Commercial building owners may receive up to $5,000 per building for efficiency upgrades. For more information on Efficiency Vermont incentives visit www.efficiencyvermont.com.

Energy Efficiency in Municipal Facilities and Infrastructure
While many of Johnson's existing municipal facilities have been newly constructed in the past decade, including the Municipal Offices and the Fire Station, older public facilities such as the library could benefit from a variety of financing options for energy efficiency improvements. Financing options for municipal facilities include grants, efficiency incentives, loans, bonds, performance contracts and a tax-exempt lease purchase. One potential grant funding source for municipal building energy efficiency improvements is the Clean Energy Development Fund (CEDF). The Clean Energy Development Fund offers a grant program that finances cost effective environmentally sustainable electric and thermal (geo thermal) energy technologies. CEDF grants are available to both individuals and organizations. More information regarding CEDF grants can be found at www.psb.vermont.gov/. Additionally, Efficiency Vermont offers financial incentives for municipalities improving the efficiency of town facilities and services. For more information visit www.efficiencyvermont.com.

The Village Water & Light Department has been improving the village's energy infrastructure on a continuous basis. The improvements include a complete rebuild of the electric substation, installation of a "back-up" substation transformer, and construction of a "backup" 34.5kv transmission interconnection tie point with Morrisville Water & Light. The upgrades greatly improve the system's reliability and quality, as well as the safety of employees. The Village has also replaced approximately 152 streetlights with LED streetlights. One hundred of these lights were done with a combination of grant and energy efficient incentives that were no cost to the rate payers; 42 lights were changed as part of the Main Street Project, and 10 lights were replaced on bridges which also received incentive grants.

Planning for development patterns that minimize energy demands
Dispersed settlement pattern that is typical for rural Vermont demands more transportation and makes the delivery of essential services, including electricity and heating fuels more expensive. This is perhaps a less of an issue in the Village of Johnson, the prevailing settlement of which is compact and tightly knit. In the absence of local land use regulations, the municipality has a limited influence over future development patterns; still, through this plan, the Planning Commission encourages future development approaches that facilitate energy efficiency.

POLICIES

- Promote energy conservation in the design, construction, and use of municipal infrastructure as well as industrial, commercial, and residential structures. (Cross reference in Public Services and Community Utilities Section)
- Support the installation of renewable energy generating systems in municipal buildings. (Cross reference in Public Services and Community Utilities Section)

- Support the development of infrastructure needed to accommodate public transit and ridesharing including park and ride lots, bus stop locations, bicycle parking, and plug in hybrid stations. (Cross reference in Transportation section)
- Support purchases of energy efficient equipment to save tax dollars over the life of the product.
- Encourage energy conservation through planning for development patterns that minimize energy demands e.g. infill and redevelopment of existing buildings/properties.
- Promote the implementation of renewable energy generating projects that benefit residents and businesses in our village and town. Any proposed large scale, commercial energy projects shall be assessed for cost effectiveness and site potential, which includes a siting review regarding impacts to natural, scenic, and working landscapes, neighboring property owners and critical wildlife habitat. If such development occurs, service and access roads should utilize existing woods roads and trails in order to limit the amount of forest fragmentation and clearing.
- Energy projects are discouraged on the Sterling, Laraway and Butternut Mountain Ranges as these Ranges are scenic and pristine natural resources that shall be preserved.

IMPLEMENTATION RECOMMENDATIONS

- Conduct regular energy audits of all municipal buildings.
- Upgrade old heating and cooling systems in municipal buildings.
- Implement lower cost weatherization practices (increase insulation, use weather stripping, install CFLs/LEDs and low-flow faucet aerators) in municipal buildings where appropriate.
- Upgrade the Village's electric system voltage from 2400/4160V to 7200/12470V over time and as economically viable to do.
- Continuously upgrade existing poles and wires outside the substation.
- Study the potential and benefits of implementing a PACE (Property Assessed Clean Energy) Financing Districts.
- Explore the creation of a community resiliency program for the purpose of promoting locally generated electricity by the strategic installation of alternative/renewable energy generation for use by the Johnson Village Water & Light and promoting efficient electric technologies.

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TRANSPORTATION

Johnson's transportation network is managed through cooperative efforts of the Town of Johnson and the Village of Johnson. The Town's Highway Department, for example, maintains local roads, bridges and culverts. Sidewalks and storm drainage systems within the Village, on the other hand, are maintained by the Village's General Department. Additionally to the local efforts, the State of Vermont maintains two major transportation arteries crossing Johnson, VT Route 15 and VT Route 100C.

Classification of local roads

Johnson road guidelines classify all municipal highways as Class 1, 2, 3 or 4, according to their importance and general use. The purpose of each class and the municipality's responsibility thereto are as follows:

- Class I Town Highways are those highways that, while the responsibility of the town to maintain, are extensions of the State Highway System and carry a State Highway route number. Johnson currently does not have any Class I Town Highways.
- Class II Town Highways are the most important highways in each town, serving as important corridors between towns, and consequently often support a large volume of local and regional traffic. Clay Hill/Plot Road, Railroad Street, and Hogback Road are examples of a Class II Town Highway.
- Class III Town Highways, such as the West Settlement Road, Collins Hill and Cemetery Rd - are all year-round travelled other than class 1 or class 2 highways.
- Class IV Town Highways are all other not classified as I, II or III. Upper end of Codding Hollow Road, from just beyond Foote Brook to the Waterville boundary is a class IV road. Class IV roads are not maintained by the Town of Johnson beyond the levels required by state statute. Year round development on class IV roads should be discouraged due to their non-maintained status. The Town has adopted a Class IV Road Policy which addresses the levels of service provided by the Town.
- Trails are rights-of-way owned by the Town or Village that are not considered highways. Johnson is not responsible for any maintenance of trails, including culverts and bridges.

Table 7. Johnson Local Highway Mileage

Class I Highway Mileage	0
Class II Highway Mileage	13.13
Class III Highway Mileage	36.41
Class IV Highway Mileage	13.19
State Highway Mileage	11.35

Bridges and culverts

The Town owns and maintains 8 bridges within its boundaries, not including the numerous culverts serving both intermittent streams and larger waterways. A Highway, Bridge and Culvert Inventory completed in 2014 identified 388 culverts on Class 2 and 3 Town Highways ranging in diameter from 6" to 144". According to the data, 60% of Johnson's culverts are in good to excellent condition; 31% are in fair condition; while the remaining 9% of the culverts in Johnson are in poor or worse condition. Given an average cost of $3,200 per culvert replacement per year, we can anticipate an annual cost of $32,000 for culvert replacement cost.

The Town voters approved the creation of a Bridge and Culvert Capital Reserve Fund, which is available for projects and likely will be used to meet match requirements and preliminary engineering costs. Most bridges and larger culvert projects will have grant programs available for construction. The Town will also need to plan for the replacement of driveway culverts as they deteriorate.

In 2014, the Town also completed an assessment of locations at-risk for road erosion which could potentially have a negative effect on water quality. These locations are almost always near or adjacent to bridge and culvert infrastructure. The intent is to utilize this information in conjunction with inventories for bridges, culverts, and road surface conditions in order to inform decisions and priorities for improvement projects and capital planning. This assessment also positions the Town well for addressing new state requirements relating to phosphorus and sediment loading described below.

New requirements mandated by the Vermont Legislature to reduce phosphorus and sediment loading in Vermont's lakes and streams from highways will have a financial impact on Town and Village budgets. The new mandate will also require different management techniques for highway maintenance, which are not yet fully known. Some of the practices will be relatively easy to implement, such as road grading and ditching methods and removal of roads sand and storm drain cleaning. Stormwater management within the Village will also be affected by these new requirements, the exact details of which are known at this time.

The Town currently maintains approximately eleven miles of paved highways. Increases in the annual paving budgets have not kept pace with increases in the costs of paving. For example, in 2002 paving costs were approximately $35.00 per ton in place and the Town had a paving budget of $45,000.00. In 2014 paving costs were approximately $85.00 per ton and the paving budget was $90,000.00. Paving costs during that period have increased by 142% while the budget has increased by 100%. Even though we have done well with state grants to augment town funds there is a need to increase local funding to keep up with the maintenance and replacement of existing paved highways.

Before any existing gravel roads are paved, the town should carefully evaluate the cost/benefit and determine if there are sufficient funds to maintain existing and new pavement. Consideration should also be given to the needs of non-vehicular use of the highways for the safety and convenience of other users, such as pavement and road shoulder widths, signage and pavement markings.

Sidewalks

Johnson Village maintains the network of local sidewalks. The maintenance includes winter plowing, spring sweeping and a general upkeep of the sidewalks. The Village continuously improves the sidewalk network.

In 2012, the Village completed a major downtown revitalization effort, locally known as the Main Street Project. The total of $3.2 million was invested in downtown beautification and the enhancement of transportation infrastructure. As a result, Main Street gained an extended and improved network of sidewalks and reconfigured parking options which include a new public

parking area at the Village Green. The street is lined up with new trees and lamp posts. Banners and decorative art adorn the lamp posts. There are park benches, bicycle racks and granite pedestals dedicated to year-round sculpture displays. New way-finding signage points visitors to key Village destinations. As part of the streetscape project, the stormwater drainage system along Route 15 underwent a complete rebuild.

The implementation of sidewalk improvements is governed by pedestrian improvement plans. The most recent pedestrian improvement plan was completed in 2008 and proposes pedestrian network upgrades along School St, College Hill Road, Clay Hill Road, Pearl Street and Route 100 C. In 2003, Johnson Planning Commission completed a Pathways Plan that identifies popular walking loops and provides a framework for future pedestrian improvements. The next implementation project, slated for construction in 2015, will extend and improve pedestrian infrastructure in the vicinity of Johnson Elementary School along School Street and College Hill Road. This project is funded by a $290,000 grant from VTrans. Johnson Village matched the VTrans grant by contributing $72,500.

Municipal Facilities & Equipment Used to Maintain Local Transportation Network
As previously noted, local highways are maintained by the Town Highway Department. The sidewalks are maintained by the Village General Department. The Town owns a highway garage, storage shed and salt shed, all located in the municipal complex at the end of Railroad Street and along Lendway Lane. The Town owns three tandem and one single axle plow trucks, one pickup, one grader, one loader, and shares a backhoe with the Village. The Village owns two Bobcat Skid Steer loaders with sidewalk plowing equipment, sander, and street sweeping attachments two light duty single axle dump trucks and three pickup trucks. The Selectboard has a duly adopted five-year Capital Plan for the purposes of phasing major purchases and capital expenditures to maintain and replace essential equipment in a predictable manner. The Village is working on developing a capital plan.

Complete Streets Legislation
In 2011, Vermont enacted "Complete Streets" legislation, mandating that all new and renovated paved roads and transportation projects consider, alongside the needs of motorists, the needs of bicyclists and pedestrians of all ages and abilities. Examples of design elements encouraged through the Complete Streets program include:

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

Johnson Main Street Project is a good example of compliance with the Complete Streets law and encourage alternative modes of transportation. In outlying areas where there are few public services and little pedestrian or bicycle traffic, Johnson will continue to consider other improvements including but not limited to higher-visibility signage and pavement markings, as determined to be appropriate.

Rail
The nearest passenger service available is AMTRAK with stations in Waterbury, Essex Junction, and St. Albans.

Airports
Johnson residents have access to private and charter aviation services through the Morrisville-Stowe State Airport on VT Route 100 in Morristown. Long-term improvement plans continue to be refined, and the first phase of work to lengthen the runway and improve the surface conditions were concluded in 2014. Commercial airline service is available through Burlington International Airport (BTV) in South Burlington (35 miles from Johnson Village).

Regional Trails
Johnson is a part of three regional trail networks used both as transportation corridors and recreational amenities. The Lamoille Valley Rail Trail, Long Trail and the Vermont Association for Snow Travellers' snowmobile trail network are described in the Recreation chapter of this plan.

Public Transportation Services
Seven human-service organizations in Lamoille County currently provide services that include Johnson residents.

- Rural Community Transportation offers a shopping shuttle between Johnson and Morrisville on Thursdays.
- The Central Vermont Council on Aging (CVCOA) provides transportation to health care, shopping and community programs. They also transport meals to residents that are confined to their homes. In addition, CVCOA operates the Retired Senior Volunteer Program (RSVP) in central Vermont. RSVP provides transportation to its volunteers in addition to reimbursing self-drive volunteers for mileage.
- Central Vermont Community Action Council (CVCAC) has contracted with Rural Community Transport (RCT) to administer a ride referral/ride match program in Lamoille County. RCT also focuses on developing and coordinating transit services and cultivating awareness of and support for public transportation in the region.
- Lamoille County mental Health (LCMH) provides rides for developmentally disabled clients between their homes and the region's treatment and activity centers.
- Vocational Rehabilitation (VR) provides services to clients with disabilities that create barriers to employment. The VR program works to relocate individuals and provide transportation so they can work in the community. VR also serves as an advocate of local and regional transportation planning.
- Out and About is an adult day care program at Copley Hospital which provides transportation to clients through RCT to gain access to and from their home to the day care.
- The VT Association for the Blind and Visually Impaired offers reimbursement to volunteer drivers and also purchases transportation for clients. There are a couple of private taxis in Johnson available to call, some drive long distances.

Johnson residents and employers, including Johnson State College, have expressed interest in exploring options for additional public transportation services to serve the community. Currently, a daily bus service runs between Jeffersonville and Burlington. Johnson would like to see this service extended to our community with stops in downtown Johnson and Johnson State College. The Town and Village may choose to engage CCTA (for Burlington), GMTA (for Montpelier), or RCT (for Morrisville) in planning discussions for services to these respective

destinations which would directly improve current options in Johnson. LCPC is a resource for these discussions.

POLICIES

- Maintain the existing infrastructure of town roads, village streets, culverts and bridges while conserving their aesthetic and recreational qualities.
- Establish infrastructure inventories and assessments for capital planning purposes.
- Explore implementation options for transportation best practices including but not limited to complete streets, access management, and stormwater management.
- Encourage the expansion of public transit service from Jeffersonville to Johnson (cross reference in Economic Development chapter)
- Support the development of infrastructure needed to accommodate public transit and ridesharing including park and ride lots, bus stop locations, bicycle parking, and plug in hybrid stations. (Cross reference in Energy section)
- Support initiatives to improve travel safety, parking availability, and alternative transportation infrastructure (e.g. for pedestrians and bicyclists).
- Discourage the road construction of town highways, class III roads, and development roads that are above 1500 feet or on slopes greater than 25%.

IMPLEMENTATION RECOMMENDATIONS

- Maintain and update infrastructure inventories including but not limited to conditions of road surfaces, town right-of-ways road widths, bridges and culverts, retaining walls and other structures, stormwater facilities, sidewalks and curbs, signs, etc., and develop a capital plan to repair and replace these assets.
- Continue to encourage the State to fund needed bridge and culvert repair and replacement projects
- Identify "road maintenance practices" training opportunities for highway crew employees in order to address the State's water quality requirements mandating reductions of road erosion, and sediment and stormwater runoffs.
- If a proposal exists to alter the location of a town road, the Town should confirm the location of the road right of way and connect with landowners to establish consensus about the road relocation.
- Identify ways to safely interconnect the Lamoille Valley Rail Trail with the Village Center in order to enable pedestrians, bicyclists and snowmobilers access downtown amenities and services.
- Consider painting "sharrow" bicycle signs on paved roads frequently used by bicyclists. Two examples of these roads are Clay Hill and Railroad Street.
- Identify parcels that can serve as commuter park-and-ride lots and/or public transit bus stops.

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PUBLIC SERVICES AND COMMUNITY FACILITIES

This chapter provides a description of the public services and community facilities available to residents of Johnson.

Local Government

For political purposes, the Town of Johnson and the Village of Johnson are independent, sovereign municipalities under state statute. The Town is governed by a five-member Selectboard and the Village is governed by a five-member Board of Trustees. Each board has the authority to execute administrative, legislative and quasi-judicial functions within its respective municipal boundaries and voters approve annual municipal operating budgets at Town meeting and the Village Annual Meeting. Historically, across the state and region, many incorporated villages were established for the purposes of creating municipal water and light districts. It was to this end that the Village of Johnson was incorporated in 1894, more than 100 years after the Town was chartered in 1792. The Town provides general government, highway and library services. The Village provides electrical, potable water, wastewater and fire protection services as well as sidewalk maintenance. The town contracts for police, ambulance and rescue services. The Selectboard and the Village Trustees are supported by a Town Administrator and a Village Manager.

Several staff members are shared employees that work for both the Village and the Town. These include Town/Village Clerk and Treasurer and office employees. During the process of preparing this plan, the Planning Commission discussed possibilities and encourages cooperation between both Boards to find operating efficiencies and financial savings.

Buildings Owned by Town and Village

The Town and the Village jointly own a number of properties. These properties include the Municipal Offices and the Municipal Public Works and Highway complex off Lendway Lane. The complex is comprised of the Village Water & Light Department garage, the Town Highway Department garage, the old Mill house, and a large building that is used for storage by Town and Village departments. In addition, the Village owns and operates the Fire Department building on Main Street, the Wastewater Treatment Facility (WWTF) at Sewer Plant Road, a water system booster pump station on Clay Hill, a water treatment and pump building and eleven acres of land off Wescom Road, a water reservoir off Collins Hill Rd, an electric sub-station within the Johnson State College campus, and a building and property formerly housing a generating plant located off VT Route 100C. The Town owns the Johnson Historical Society Building on Main Street and Johnson Public Library on Railroad Street.

With the exception of the former generating plant, most of the municipal buildings and properties are all relatively new or rehabilitated and should not require significant capital improvements in the near future. Major investments have been made in sewer and water infrastructure over the last decade and will require modest capital investment for the near term. The Wastewater Treatment Facility (WWTF) is now 20 years old and will require some level of capital improvements as time goes on. The location of the WWTF in the floodplain may be an issue in the event the Facility is damaged during a flood.

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Two small structures recently added to the Town's ownership include a bandstand at Legion Field and a trailhead building at the Old Mill Park.

Johnson Public Library
Johnson Public Library, located on Railroad Street, is one of the buildings owned by the Town and administered by a five-member Library Board of Trustees. Operating independently from the Selectboard and Village Trustees, the Library Trustees conduct library business, set policies, develop budgets, volunteer in the library and advise librarians. While Johnson Public Library (JPL) is a municipal library, it does receive some private funding. As Johnson's population grows, library use is expected to increase proportionally. A recent survey conducted by the library shows that the community would welcome an enlarged area for children's programs, the addition of a young adults' room, and a conference/adult reading room. To meet the demand for additional space, the library recently renovated an unused room in the basement that now serves for a variety of children's programs. The accessibility to the newly added room is an issue and the Library Trustees feel that in order to meet the building code requirements, the access needs to be improved. The Trustees would also like to see an improved pedestrian access to the library which could be achieved by constructing a new sidewalk on the west side of Railroad Street and also placing a crosswalk across Railroad Street.

Johnson Historical Society
Johnson Historical Society is a municipal commission operating out of Dr. Holcomb's house located on Main Street. The building was purchased by the Town in 2014 after the voters approved a loan of $252,000 to acquire the building and make renovations to the property. While Johnson Historical Society is a municipal commission whose expenses are supported by Johnson tax payers, the Historical Society conducts its own fundraising activities to support its operations. In 2015, the Historical Society launched a capital campaign the goal of which is to pay off the building purchase loan.

Open Lands and Parks Owned by the Town and the Village
The Town and the Village of Johnson own several properties featuring open lands and parks. Most of these properties are used for recreation and are described in the Recreation section of this Plan (page 40).

Municipal Utilities
Electricity
Johnson Village owns and runs the Water & Light Department that provides electricity to an area slightly larger than Johnson Village. The Department maintains 28 miles of distribution lines most of which are above ground. The lines are generally in good physical condition and comprise a reliable distribution system. Since around 1956 the Department has purchased all of its power supplies from outside generation sources. The Department still owns the old hydro generating plant site and land on the Gihon River near the School Street Bridge; however, the water rights to the original dam were sold. The Water & Light Department's operations are described in more detail in the Energy section of the plan (page 28). The Energy section also lists three other electric companies providing electricity to residents of the Town.

Wastewater
The Village owns and operates a municipal Wastewater Treatment Facility (WWTF) built in 1995. The WWTF has a design capacity of 270,000 gallons per day. In 2015, the plant operated at approximately 49% of its design capacity which means that the plant should provide Johnson with the ability to accommodate its needs for the foreseeable future.

Currently, the WWTF serves the entire Village (including Johnson State College) plus a couple designated areas in the Town. The process of extending the Village sewer services into the Town is governed by an inter-municipal agreement between the Town and the Village.

Development in the Village is required to connect to the wastewater system, if the development is within 100 feet of a sewer line. Outside the Village and the areas of Town governed by the inter-municipal agreement, there are no public sewage treatment facilities available. All sewage must be handled by private, on-site systems. Under state regulations that came into effect in 2007, permitting for septic systems, leach fields and wells is now delegated to the state. To comply with state regulations, individuals must apply for a Wastewater and Potable Water Supply Permit from the Department of Environmental Conservation.

Water supply
The Village of Johnson operates a municipal water system for village residents and the Johnson State College. Connection to the system is regulated by the Village's Water System Rules and regulations. The municipal water system draws public drinking water from two sources. The first source is the Osgood well just west of Johnson Village off Route 15 drilled in 2004. The Nadeau Well, located southeast of the Village and drilled in 1974, serves as a backup supply.

Although not in service as sources of public drinking water, in the Village's ownership is a reservoir located on Reservoir Road and historic Cold Spring located on Main Street in downtown Johnson.

Residents outside the Village supply their own water through on-site, private systems (e.g. springs or wells).

Storm Drainage
The State of Vermont owns and maintains the storm drain systems along Route 15 and Route 100C. In 2011 and 2012, the stormwater system along Route 15 in downtown Johnson was completely rebuilt as part of the Main Street Project. The Village maintains the actual catch basins.

The Town maintains ditches and culverts on the local highway system within the Village.

The Village owns and maintains primary storm drain systems located on Pearl Street and School Street which discharge into the Gihon River by the Pearl Street Bridge,

IMPORTANT TERM

The term **stormwater** applies to rain and snowmelt that runs off impervious surfaces, including roofs, driveways and paved streets, rather than infiltrating into the ground and natural water cycle. As it flows into streams and lakes, stormwater runoff often picks up pollutants such as oils, fertilizers and sediment. Excess stormwater also contributes to erosion and increases stream volumes during peak storm events.

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and on Railroad Street which discharges into the Lamoille River. There are a few other locations where village catch basins empty into the state system. The Village has a responsibility to maintain these catch basin systems and annually cleans the catch basins by a trailer mounted Vactor system. The Vactor system is owned by a consortium of four towns that includes Johnson Village and is housed in Johnson.

In general, the age and condition of the Village owned storm drain system is the weakest link in infrastructure. Some of the system was replaced during water, sewer and bridge projects undertaken in the last ten years but for the most part the system is not in great condition. A stormwater infrastructure mapping project was completed for the municipality in 2012 by the Agency of Natural Resources Ecosystems Restoration program to supplement the existing drainage data collected by the town and with the intention of providing a tool for planning, maintenance, and inspection of the stormwater infrastructure. The principal goal of this project was to develop up to date municipal drainage maps. A secondary goal was to establish potential locations for Best Management Practice (BMP) stormwater retrofit sites. These are sites where stormwater treatment structures could be added and where they would be most cost effective and efficient for sediment and phosphorus or nitrogen removal. Despite the system's age and condition, the stormwater mapping revealed no illicit discharges or significant water quality issues. Wastewater and storm-water were separated years ago and during the Main Street Project careful attention was paid to insuring there were no cross connections to the storm-water system.

Solid waste facilities

Johnson is a member of the Lamoille Regional Solid Waste Management District (LRSWMD), a municipal district formed to serve the towns of Lamoille County as well as Craftsbury and Worcester. Solid waste and recycling from Johnson is brought to the Johnson drop off site at the former Johnson landfill. From there, waste is hauled to a landfill in Coventry.

In 2013, the Vermont Legislature passed Act 148 (H.485), a phased-in law aiming to increase the amount of material we keep out of the landfill by mandating recycling and composting. Several important milestones of the mandate include the following:

- July 1, 2014: Transfer stations/drop off facilities must accept residential recyclables at no extra charge.
- July 1, 2015: When trash containers in a public building or on public land are provided, an equal number of containers shall be provided for the collection of mandated recyclables. Public bathrooms are exempt from this requirement
- July 1, 2017: Transfer stations/drop off facilities will have to accept food scraps.

Johnson will need to create a system for its transfer station, and public lands and buildings to comply with the law. Additionally, training opportunities for residents and businesses to educate about the requirements of the law would be helpful.

Public Wi-Fi

In 2014, The Town of Johnson and a local business group called Johnson Works Community Organization entered into a partnership that provides a public Wi-Fi service in downtown Johnson. The Town owns and maintains the wireless routers and Johnson Works funds the cost of the internet service for the Wi-Fi. The Wi-Fi is available along Main Street, approximately

between Johnson's Sterling Market and Johnson Woolen Mills. Daily, approximately 180 people utilize the Wi-Fi.

Public Safety

Law enforcement

There are two levels of police coverage in Johnson: the Lamoille County Sheriff's Department, and the Vermont State Police. Town Constables are appointed by the Selectboard and do not currently have any law enforcement authority.

The Lamoille County Sheriff's Department provides enforcement of all laws that fall within the local jurisdiction, emergency dispatching services and requested back up in emergency situations. A minimum level of service is provided to all ten towns in the county; however, an additional level of service is provided to Johnson (Hyde Park and Wolcott), on a contractual basis for twenty-four hour police protection; response to emergency fire and rescue calls; and to serve in the civil legal process. The Sheriff is elected to the position by Lamoille County voters.

The Vermont State Police provide a second level of police protection and support for Johnson residents. The State Police provide emergency and back-up coverage as requested by the Sheriff's Department, criminal laboratory services, and the service of officers who are trained in special areas (i.e. homicide, arson or drug enforcement).

Rescue Services

Rescue services in Johnson are provided by the Northern Emergency Medical Services Division of Newport Ambulance Service, a nonprofit ambulance service that provides immediate response emergency medical care, backup emergency response services (to volunteer rescue squads) and medical transfer services. The ambulance is dispatched either through 911 calls received at the sheriff's department or through direct calls to the service itself. The ambulance service is a not for profit, fee for service organization that is supported, in part, with municipal funds.

Fire

The Johnson Fire Department is a volunteer fire department providing twenty-four hour fire, rescue protection and HAZMAT (Hazardous Materials) response to a Community Service Area defined by the Village of Johnson and the towns of Johnson, Waterville and Belvidere. The Fire Department also operates a water rescue team that is on a rapid response team with Vermont Emergency Management.

The Johnson Fire Department (JFD) is administratively responsible to the Village Trustees and receives part of its funding from the Village. Service to the towns of Johnson, Belvidere and Waterville is by annual contract for fire protection coverage. Johnson State College typically pays a contribution for services as well. JFD is dispatched through the County Sheriff's 911 emergency call service. Over the past years, the volume of calls has been on a steady increase. While in 2003, the department responded to 91 alarms, in 2014, they had 136 alarms. The Department is supported by an Auxiliary that, among other things, provides food and refreshments during extended or large calls.

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In February 2004, JFD fire station was destroyed by a structural fire. This tragedy resulted in the loss of the fire station, gear and most of the equipment, personal gear and memorabilia, awards and trophies of the firefighters. The construction of the new Fire Station was completed in December 2005.

The Fire Department has developed a Capital Plan for replacement of both large and small equipment. The Capital Plan is used by the Village Trustees and the Fire Department for annual budget planning and operation. Following the procedures outlined in the large equipment plan, the Fire Department recently replaced a tanker. This was the second equipment purchase since the establishment of the large equipment fund in 2001. The small capital fund was established in 2009 and the first purchase of small tools is projected for 2016.

Fire department concerns

One issue identified by the Fire Department is a challenge to access outlying structures located along steep and narrow driveways. The Fire Department has set up their fleet and equipment in a manner that provides more than one access choice. Nonetheless, access by emergency vehicles to the outlying structures remains a challenge and should be taken into account when considering new development.

Another cause for concern is the limited access to stable water sources. To overcome this challenge, the Fire Department has been working with the Vermont Association of Conservation District's Rural Fire Protection Program to place dry hydrants in outlying areas of the Town. Within the Village's hydrant district, fire suppression capability has been improved by installing new hydrants as part of a larger water mains replacement project.

In recent years, the Fire Department received an increased number of false alarm phone calls caused by failing smoke detectors and carbon monoxide alarms. The State Division of Fire Safety provides educational materials about proper installation and replacement of aged detectors and carbon monoxide alarms.

Emergency Management and Planning

The Lamoille County Planning Commission (LCPC) completed a Hazard Mitigation Plan (HMP) for the county and its ten towns. This plan contains an appendix specific to Johnson with background information, a hazard inventory and mitigation strategies. Working with LCPC, the Town is currently developing a stand-alone HMP. The primary hazard in Johnson is flooding, which is described in detail in the Flood Resilience chapter.

Johnson has developed two important emergency plans to organize and coordinate responses to disasters in town:

- The Emergency Operations Plan (EOP) describes the basic mechanisms and structures by which the Town and Village of Johnson will respond to potential and/or actual emergency situations. The primary purpose of the EOP is to initiate, coordinate, and sustain an effective local response to disasters and emergency situations. Secondary to this is to make each organization and department aware of its responsibility in all-hazard emergency operations. This plan, upon being implemented, provides the basis for

coordinating protective actions prior to, during, and after any type of disaster. The EOP is available at http://townofjohnson.com/documents/plans/.

- The Rapid Response Plan (RRP) is a product of the EOP effort. The RRP consists of a collection of different contact lists, procedural checklists that organize the information on functional areas of disaster response, the agencies responsible and how to contact them. They are meant to be filled out, followed and kept on hand in the case of a disaster.

Emergency Operations Centers / Emergency Shelters
Johnson's Emergency Operations Centers and Emergency Shelters assist disaster victims and emergency workers and help those affected by disaster to access other available resources. Johnson currently has 2 designated EOCs: Fire Station and Municipal Offices, and 2 designated shelters: Johnson State College and Johnson Elementary School.
The Town should enhance the capacity of its Emergency Operations Center / Shelter with generators and other equipment, and coordinate with the Red Cross in order to enhance its effectiveness and insurance coverage.

Health facilities & services
The primary health care facility serving Johnson and the whole Lamoille County is Copley Hospital in Morristown. Copley Hospital is a 53-bed acute care hospital that serves as an emergency care center for local emergency services and provides inpatient and out-patient service, long-term care, and family oriented birthing center. Copley functions as part of the larger Vermont health care system, with the Medical Center Hospital of Vermont (MCHV) in Burlington acting as the major tertiary referral hospital.

Copley sponsors a Wellness Center for the community. The Wellness Center focuses on proactive prevention versus reactive treatment, offering flu vaccines, birthing classes, diabetes educators, and dietitians, among efforts. Copley Hospital also operates: Mansfield Orthopedics, the Health Center Building, Lamoille Area Housing Coalition, and Copley Terrace and Copley Woodlands (housing for elderly populations).

The Community Health Services of Lamoille Valley (CHSLV) in Morrisville is a federally qualified health center which offers quality medical, dental, and behavioral services to residents of Lamoille County regardless of their ability to pay. Their primary and specialty care practices include Morrisville Family Health Care, Women's Center, The Behavioral Health & Wellness Center, and the Community Dental Clinic.

Agencies and services not affiliated with Copley include the Department of Health (Morrisville District Office), Lamoille Family Center (Morrisville), the Diabetes Center of Lamoille County (Johnson), Johnson Health Clinic (Johnson), Johnson Senior Center, Lamoille Valley Mental Health Services, Manor Nursing Home, Clarina Howard Nichols Center, Planned Parenthood, and Lamoille Home Health and Hospice. In addition, the Central Vermont Council on Aging provides many services including free transportation for seniors to health care appointments, and nutritional dinners delivered to homebound residents through Meals on Wheels or served at various community sites. The Johnson Senior Center hosts Community Meals on Tuesdays and Thursdays. These services enable adults with disabilities and seniors to stay in their home and community. Central Vermont Community Action Council and the United Way of Lamoille

County support a variety of programs including Head Start, home weatherization, emergency fuel assistance and provide family/ community support.

Vermont 2-1-1 is a simple three digit telephone number to dial for information about health and human service organizations in one's community. By dialing 2-1-1 Vermonters receive free access to community resources through information and referral. This access includes personal assistance by telephone or is online at www.Vermont211.org through a searchable database of services.

In Johnson, there are also two physicians, and several mental health counselors and physical therapists. Johnson State College has a Wellness Center for students which provides counseling services and facilitates medical appointments. The College also hosts periodic opportunities for area veterans to connect with service providers. There is a need in the community for a better access to health care services. The municipality has made efforts to host a federally qualified health center but so far, those efforts haven't come to fruition. The community is also in need of a pharmacy. Today, Johnson residents have to drive nine miles to either Morrisville or Cambridge to access a pharmacy.

Cemeteries

There are six cemeteries in the Town and Village of Johnson. Three Cemetery Associations, a Cemetery Commissioner and the Johnson Selectboard oversee the care of these cemeteries.

Table 8. Johnson Cemeteries

Cemetery	Size	Capacity Status
Evergreen Ledge	+/- 1.1 acres	App 20-25 plots available (2015 data)
French Hill or Grow Cemetery	+/- .45 acres	Uncertain, but likely at or near capacity
Lamoille View	5-6 acres	At 60% capacity; should not reach full capacity for 10-20 years
Plot Cemetery	1 acre	Uncertain, considered full
Whiting Hill	Unknown	Considered full
Old Catholic Cemetery	Unknown	Considered full. Some research will be required to determine the future of this area.

Source: Johnson Utilities and Facilities Report 2000.

POLICIES

Public Buildings, Lands and Utilities:

- Continue developing long-term plans for maintenance, improvement and expansion of utility infrastructure and management plans for public buildings and lands.
- Promote energy efficiency and conservation in the design, construction, and use of municipal facilities. (Cross reference in Energy Section)
- Support the installation of renewable energy generating systems in municipal buildings. (Cross reference in Energy Section)

- Create a system that will assist the community with the implementation of Act 148 which mandates recycling and composting.

Health services:

- Encourage efforts that improve access to local health care services.
- Encourage efforts to locate a pharmacy in Johnson.

Public Safety:

- Consider the recommendations of the Hazard Mitigation Plan in future land use planning decisions
- Evaluate fire protection capabilities town-wide and consider planning for additional acquisition of dry hydrants where they would significantly improve fire suppression capabilities (e.g. rural areas with multiple structures and limited access by emergency vehicles)
- Support the development of new driveway standards which would meet emergency vehicle requirements for property access.

Local Government:

- Encourage the Boards to find operating efficiencies and financial savings.

IMPLEMENTATION RECOMMENDATIONS

- Develop and regularly update a Capital Budget and Plan for all major equipment and utility infrastructure owned and operated by the Town and Village.
- In conjunctions with the Lamoille Regional Solid Waste Management District, identify funding sources to implement the recycling and composting mandates of Act 148.
- Facilitate education and training opportunities to Johnson's residents and businesses to learn about recycling and composted mandated by Act 148.
- Continue to regularly update emergency planning documents.
- Evaluate and consider the expansion of dry hydrant installations; pursue dry hydrant grant funding to implement expansion if deemed necessary.

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EDUCATION

Early Childhood Education & Child Care

Data tells us that 72% of Vermont children under the age of six have all parents in the workforce.[1] These parents rely on care outside of the home for their children for up to 40 hours a week. High quality early childhood experiences lay a foundation for children's success in school and in life. When we help our children grow to become productive adults, we also support our current workforce of parents, strengthen our community, and invest in prosperity now and in the future.

The Step Ahead Recognition System (STARS) is Vermont's quality recognition system for child care, preschool, and afterschool programs. Programs that participate in STARS are stepping ahead – going above and beyond state regulations to provide professional services that meet the needs of children and families. Parents and guardians can look to STARS as one indicator of quality when choosing child care.

Building Bright Futures, a program of the Vermont Department of Children and Families, operates an online childcare directory (see www.brightfutures.dcf.state.vt.us). It currently lists seven registered in-home child care facilities and three licensed child care centers. The licenced child care centers are the Turtles and Tots child care center, the pre-kindergarten program at Johnson Elementary School (JES) and the Beyond the Bell program for JES students grades K-6. While Johnson is fortunate to have prekindergarten available at the elementary school, this program does not provide full-week care and parents of children enrolled in the program often must make additional childcare accommodations for when their children cannot attend the program at JES.

The Lamoille Family Center (LFC) in Morrisville offers a range of early education services through a coordinated service network known as Children's Integrated Services (CIS). Programs offered through this network include Maternal Child Health, Early Childhood and Family Mental Health, And the Early Intervention Program for children with development delays.

Elementary School Education

Johnson students, pre-kindergarten through sixth grade, attend classes at Johnson Elementary School (JES) located on School Street in Johnson Village. JES is operated by a five-member School Board. The School underwent a major renovation in 1997 and was expanded by the addition of a gymnasium, 11 classrooms, a library, and a kitchen. As a result of the expansion, the school now has a capacity for approximately 350-360 students. Table 9 shows that the enrollment at Johnson Elementary has averaged 245 students over the past 10 school years. During this time, the enrollment has been as low as 231 and as high as 257 in 2014-2015. Despite statewide trends of declining student enrollments, JES enrollment has remained stable over the last decade.

[1] Census Bureau, American Community Survey 2008-2012, Percent of Children under 6 years old with all parents in the labor force.

Table 9: Johnson Elementary School Enrollment 2005-2014

Year	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Total	254	231	247	250	238	233	231	252	257	257

Source: Vermont Dept. of Education Student Enrolment

Act 46 and its Impact on Johnson Elementary School

Act 46, signed into law in 2015, provides tax incentives to encourage small school districts, such as Johnson's, to dissolve and together form new, larger districts that have 900 or more students. It also provides penalties for districts that don't choose voluntarily to unify, and, by 2018, will empower the Agency of Education to force smaller districts to merge with others in order to achieve the target district size. Any decision to form a new union school district can ultimately be decided only by the voters at a special election.

JES Capital Improvements

The Elementary School budget for 2015-2016 is $4,325,365, a 1.29% increase from the previous year. Last year, the Town received a $1,115,000 bond to begin some much needed facility repairs such as new stage flooring and new kitchen flooring, and technology upgrades including rewiring the entire technology system and adding new wireless access points. Other facility renovations include a new roof on the oldest portion of the school building as well as a new gym floor, upgrading the dry sprinkler system and updating the HVAC controls to become more efficient.[2] The School also plans to demolish the currently unused "Yellow House" and is currently exploring other possible uses for the site.

Several other projects that have been completed in 2015-2016 include the renovation of the school playground and a basketball court, and the construction of new sidewalks on School Street and College Hill Road.

Middle and High School Education

After graduating from Johnson Elementary School, 7 through 12 grade students attend Lamoille Union Middle & High School in the neighbouring town of Hyde Park. High school juniors and seniors also have access to career training and educational opportunities at Green Mountain Technology and Career Center (GMTCC), located on the same campus as Lamoille Union Middle and High School. GTMCC offers technical programs in thirteen areas of study. Noteworthy and award-winning programs include forestry and land management, automotive technology, culinary arts and HVAC.

The Lamoille Union Middle & High School facilities currently serve students from six towns of Johnson, Belvidere, Cambridge, Eden, Hyde Park, and Waterville. As of the 2014-2015 school year, 784 students attended the School. Since opening a new wing of the building in 2002, the facilities are considered to have sufficient capacity to accommodate reasonable growth projections across the district.

Lamoille North Supervisory Union

[2] Town of Johnson Annual Report, 2014.

Administratively, the Middle and High School is governed by the Lamoille North Supervisory Union (LNSU). LNSU is governed by a 12-person board of directors; at present three of the Directors are from Johnson. The purpose of the Supervisory Union is to coordinate educational efforts, enable increased economies of scale, enhance cost efficiencies, and expand educational opportunities for students.

Vermont cities and towns are experiencing serious declines in student enrollments, which must translate into reductions in workforce and other budget items. However, in LNSU that is not the case. This trend is likely to continue with slight variations over the years ahead. On average over the past year, budget increases have been under 1% across the District. [3]

Post-Secondary & Adult Education

Green Mountain Technology and Career Center (GMTCC) provides adult workforce education and training programs that provide individuals with skills that are valued in the workplace. Multiple GMTCC courses are eligible for college credit. Along with the GMTCC, there are two other local institutions offering college-level instruction in Lamoille County. Johnson State College offers a variety of graduate and undergraduate degree programs, as well as continuing education services. The Community College of Vermont (CCV) operates a campus in Morrisville, offering Associate Degrees, certificate programs and online instruction in various pre-professional concentrations. Finally, additional educational opportunities are available at Central Vermont Adult Basic Education (CVBAE) in Morrisville, which offers free literacy programs to adults and out-of-school youth.

<u>Johnson State College</u>

Johnson State College is one of five colleges belonging to the statewide network of Vermont State Colleges. Johnson State College features a range of programs in Behavioral Sciences; Biology and Environmental Science; Business and Economics; Education; Fine & Performing Arts; Health Sciences and Outdoor Education; Hospitality and Tourism Management; Humanities and Liberal Arts; Mathematics; Wellness & Alternative Medicine; and Writing and Literature.

In conjunction with the Fine & Performing Arts program, Johnson State College offers high quality cultural programming available to the entire community. Dibden Center for the Arts houses theater, music and dance. Events range from local to nationally known performers. Performances are open to the community. The Center also houses the Julian Scott Memorial Gallery that hosts student, faculty and touring art exhibits. Through the leadership of JSC staff and students an annual outdoor sculpture show is held in downtown Johnson in summer and fall.

As of fall 2014, Johnson State College had a student population of approximately 1,650 students. Of this number, roughly 1,100 students attended on-campus undergraduate and graduate classes and 550 students were enrolled in external, off campus undergraduate programs.

Johnson State College's Willey Library and Learning Center has over 110,000 book titles, 9,000 movies and recordings, an extensive children's collection, internet access and related amenities enabling reading, study and/or research. The Library offers free membership to area residents.

[3] Town of Johnson Annual Report, 2014.

Other Educational Options

Private schools and home schooling

Outside the local public school system, residents may elect to send their children to one of several area private schools—most notably the Bishop John A. Marshall School, a Catholic school in Morrisville offering pre-kindergarten through 8th grade. Some residents also choose to home-school their children, or customize an education plan that allows for a mix of home-learning and school participation.

Alternative Education

Laraway Youth and Family Services operates an independent school approved for special education. The School serves 4 to 12 grade students who have special emotional and behavioral circumstances that keep them from being successful in their own schools. Laraway also runs a substitute care program, a behavioral treatment program that serves youth who experience problems that make it difficult for them to live in their own communities. Laraway provides services designed to support children, adolescents and their families as they identify effective ways to address those problems. Finally, Laraway is a Licensed Child Placing Agency administering a statewide Foster Care program that provides daily care, intensive care management, treatment and crisis intervention services.

Vermont Studio Center Art Residencies

The Vermont Studio Center (VSC) is a nonprofit, year-round, international creative community serving artists and writers from across the country and around the world. Each month, 50 artists and writers participate in 4-12 week independent studio residencies. Throughout the year, VSC also offers exhibitions, public lectures and readings to the community.

Since it was founded in 1984, VSC has offered a free summer art program for children, and since 1998, a community arts program for teenagers and adults. In addition, VSC's Community Arts Director teaches art classes at the local Johnson Elementary School. As part of her teaching program, she is often assisted by VSC residents, and monthly, VSC international residents are invited to participate in special projects with the students.

Johnson Public Library Programs

Johnson Public Library provides high quality educational programs for youth of all ages that have consistently been growing in popularity. The programs vary by season but typically include story time, Lego Club, tinker labs, etc.

POLICIES

- Johnson recognizes the importance of high-quality child care and early childhood education within the community and supports the expansion of these services. We encourage efforts that strive to provide safe, affordable and high quality care and integrate child care issues into regional and local planning processes.
- Johnson recognizes that its K-16 educational system is central to our community's quality of life and its continued prosperity.
- Johnson encourages efforts that broaden access to educational and vocational training opportunities for adult and high school learners.

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IMPLEMENTATION RECOMMENDATIONS

- Continue to track population changes to ensure enrolment needs and capacities are met.
- Support inter-municipal coordination in planning for changes in school capacity, class sizes, and programs.
- Support initiatives to develop child care facilities where a need has been proven.
- Collaborate with community partners, regional workforce organizations, educational facilities, local employers, and the business community to evaluate workforce development needs, strategies, and trends.

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RECREATION

To many residents and visitors alike, Johnson's sense of place is defined by the community's recreation assets. Johnson's recreation assets are beautiful and abundant. They include recreation parks, open parcels of land, rivers, trails and indoor recreational facilities. A comprehensive list of Johnson's recreational opportunities is available in the Recreation Facilities Plan completed by the Johnson Planning Commission in 2005. The Recreation Facilities Plan also examines the most pertinent recreation issues and outlines future priority actions.

This plan focuses on describing the recreation facilities owned by the municipality. Johnson Recreation Committee utilizes these facilities by offering a broad range of recreation programs including soccer, baseball, lacrosse, gymnastics, basketball and a Memorial Day Fun Run.

Recreation Parks

The Old Mill Park

The Old Mill Park is a 22-acre athletic park located at the end of Railroad Street. The site used to be owned by Luzenac America and formerly served as a talc-processing site. In 1995, after the company ceased its operations, the premises were converted to recreational use. The Town of Johnson acquired the property by donation from Luzenac in 2011.

The park consists of three baseball and softball fields, and three soccer fields. The central part of the park features swing sets and a gravel path that circles the outskirts of the entire park. The gravel path underwent a complete reconstruction in 2015.

The park is adjacent to the Lamoille Valley Rail Trail and serves as Johnson's primary access point to the Rail Trail. In 2015, the Town built a trailhead facility that serves both Rail Trail and Old Mill Park users. The facility provides parking, an ADA accessible port-o-let, a drinking fountain and information displays about Johnson.

Nelson Duba (Checkerberry) Field

The Nelson Duba Field is a beautiful field located in the heart of Johnson Village. The 2.9-acre parcel stretching along the northern bank of the Gihon River was purchased by the School District in 1924 and is home to a baseball field. In 2015, the School District donated the parcel to the Town of Johnson.

River Park Skate Park & Bike Track

River Park is a 10-acre recreation area located on the west end of the Village and intersected by Wescom Road. The eastern border of the River Park meanders along the Lamoille River. A portion of the area has been developed into a skateboard park and a bike track. The Skatepark and Bike Track Committee oversees the operation of the skatepark and is in charge of the park's improvements. The remainder of the River Park is undeveloped. Due to its location in the floodplain, the park land can only be used for recreational purposes. One potential use for the land could be to develop it into a river access site for paddlers, anglers and the community at large.

Legion Field
The Legion Field is a 1.6-acre parcel located on School Street in proximity to Johnson Elementary School. The *Johnson Pathways Plan* acknowledges the Legion Field as an "extremely important town facility often serving as a town common for special events." Parking is available along School Street and on a nearby College Hill parking lot.

The central location of the Legion Field in the heart of the Village lends itself to the field's frequent use. Annually, the field hosts baseball games, Johnson Elementary School physical education classes, Winter Carnival and the Tuesday Night Live summer concert series. Tuesday Night Live has grown to be a very popular event and prompted the Town to enhance the field by building a permanent timber-frame bandstand. Additionally, Johnson Recreation Committee equipped the field with a small toddler playground. In the winter, Johnson Fire Department floods the field and converts it into an ice rink. The hillside of the field functions as a sledding slope.

Undeveloped Lands and Swimming Holes
The Town and the Village own several parcels of open land that are mostly used for unstructured recreation. Among these parcels are the Village Green on Main Street, the Prindle lot (25 acres off Plot Road), the Gomo Farm Town Forest (141 acres off Codding Hollow Road), Former Talc Mill Property (195 acres off Lendway Lane), and French Hill Reservoir Land (50 acres off Reservoir Road). In recent years, the Johnson Conservation Commission developed management plans for several of these properties. The Johnson Planning Commission conducted a study of potential uses of the former Talc Mill Property. The Talc Mill Property study can be found at http://townofjohnson.com/documents/plans/

Two most recent open land acquisitions by the Town include a 25-acre Journey's End parcel located off Plot Road and along Foote Brook, and a 2-acre Gihon riverfront parcel on School Street. Conservation easements placed on both properties afford permanent public access to two popular swimming holes and angler destinations.

Gymnasium and Playground at Johnson Elementary School
The gymnasium and the playground are owned by the School District and are integrated into a greater Johnson Elementary School campus located on School Street. The gymnasium was built in 1998 as a part of a larger building addition project. The playground, completely rebuilt in 2015 through the efforts spearheaded by the Johnson Playground Committee, features equipment for elementary school students as well as toddlers, a basketball court and a grass-covered play area.

The gymnasium, added to the original school building in 1997, is considered a wonderful addition to Johnson's indoor recreation facilities. The demand for its use is greater than the School's ability to accommodate it. Youth basketball games, gymnastics and dance, all sponsored by the Johnson Recreation Committee are held here. Town meeting is held here in the spring. Some community celebrations, such as Winter Carnival, are able to take advantage of this indoor space and organize activities that complement the outdoor activities.

Regional Trail Networks
Both the Lamoille Valley Rail Trail and Long Trail pass through Johnson. Additionally, VAST maintains a network of snowmobile trails in the region. These trail networks are not maintained by the Town, rather, they are maintained by non-profit organizations leasing the trail lands from private or public property owners.

The Lamoille Valley Rail Trail (LVRT) will be a 98-mile four-season multiuse recreational trail between Sheldon Junction and St. Johnsbury. While the majority of the trail yet awaits reconstruction, in 2015, fifteen miles of trail improvement work was conducted in Johnson, Cambridge, Hyde Park and Morrisville. The trail provides a year-round, safe and enjoyable travel alternative for all non-motorized modes of transportation including but not limited to pedestrians, bicyclists and equestrians, while in the winter the trail allows for snowmobiling in addition to non-motorized use. The LVRT is the property of the State of Vermont and is currently leased by the Vermont Association of Snow Travelers (VAST). The lease dictates allowable public uses and describes the responsibilities agreed to by VAST for building, operating and maintaining the trail. The Town of Johnson is responsible for providing trailside amenities for trail users. In 2015, the Town built a trailhead facility at the Old Mill Park recreational fields. The facility provides visitor parking, safety and tourism information, a water-fountain and port-o-let facilities.

Snowmobile trail network: The Vermont Association of Snow Travelers maintains an extensive network of snowmobile trails on private and public lands across the state. VAST trails in the Johnson area comprise of a 47-mile network and are maintained by the Sterling Snow Riders club. At this time, there is no access trail for snowmobiles to reach the village center. An interest exists to find a solution that would provide connectivity between the current trail network and downtown amenities and services.

Long Trail: Johnson's stretch of the 270-mile Long Trail consists of fifteen miles of main trail and 1.5 miles of side trails. The trail descends the north side of Whiteface Mountain, through Bear Hollow, along Smith Brook Basin, crosses Rte 15 and the Lamoille River, ascends to Prospect Rock, up and over Roundtop Mountain, crosses the Plot Rd, winds into Codding Hollow, then continues its way north to Laraway, Butternut and Bowen Mountains. The trail includes three overnight shelters: Bear Hollow, Roundtop and Corliss Camp. Long Trail access points in the Johnson area include Route 15 just west of West Settlement Road where there is also a parking lot, Basin Road off of Codding Hollow Road, also known as Davis Neighborhood trail, as well as a small 2 car pull-off where the Trail crosses Plot Road.

Johnson State College recreation resources available to the community
Johnson State College (JSC) has a broad range of recreation facilities that are available to the community. These include the SHAPE Center, which has a fitness center, weight room, indoor swimming pool, exercise rooms, racketball courts and an indoor climbing wall. SHAPE offers membership to Johnson residents at a reduced rate. There are also four outdoor tennis courts; a network of hiking, biking and running trails; and disc golf course. All outdoor recreation assets are available to the public at no cost. The Lower Pond is a favorite walking destination. Free campus maps can be picked up at the Admissions Office.

Throughout the year, the College hosts performances, guest speakers and countless other events at Dibden Center for the Arts and other campus venues. Virtually all of these events are open to the public – many of them free; others for a nominal fee. In addition, all home varsity games are open to the public and free of charge. JSC competes in NCAA Division III and fields 15 varsity teams, including soccer, basketball, volleyball and lacrosse. Area residents also enjoy free access to the Willey Library & Learning Center. The College welcomes and encourages community members to take advantage of the many programs and resources on campus.

Rivers and Trails

The Gihon and Lamoille Rivers help create the essential character of Johnson. The picturesque rivers can be admired from many scenic locations including the Power House Bridge and an area located near the United Church. Fishermen and swimmers are among the most frequent river users. Kayakers flock to Johnson in the spring. Johnson has an ongoing interest in improving access to its rivers to increase the appreciation and use of these unique natural resources. A newly founded Lamoille River Paddlers Association strives to build a viable paddlers' trail with access points and camp sites along the length of Lamoille.

The Long Trail, the Lamoille Valley Rail Trail and VAST snowmobile trails are three major state trail systems that pass through Johnson. The Transportation chapter of this plan describes these trail systems in more detail.

POLICIES

- Encourage efforts to revisit and/or implement recommendations of the 2005 Recreation Facilities Plan. These efforts include the following strategies:
    - Encourage the expansion of trail-based infrastructure to improve connectivity and pathway networks expansion.
    - Facilitate access to and improve the publicity for recreation programs, facilities and policies governing the use of the facilities.
    - Preserve and encourage recreational uses of rivers, streams and ponds.
    - Support and actively pursue strategies assuring long-term public access to recreation resources.
    - Support efforts that maintain and facilitate access to private lands.

IMPLEMENTATION RECOMMENDATIONS

- Periodically review recommended implementation tasks outlined in the 2005 Recreation Facilities Plan and, where applicable, determine which are feasible for implementation.
- Priority tasks identified by the Planning Commission in 2015 are:
    - Create and maintain access to all municipally owned recreational resources.
    - Improve signage to municipal recreational facilities.
    - Improve river access for paddlers, anglers and the community at large.

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FLOOD RESILIENCY

This Plan recognizes that the Town and Village of Johnson contains diverse landscape features and development types. As a result, a single community-wide approach to flood resiliency is inappropriate. For that reason, this section will lay out a "Landscape Based Approach" for flood resiliency. Under this landscape based approach, Johnson will work to protect and secure existing settlements, especially Johnson Village, from future flooding, will plan for new development in safer areas with appropriate infrastructure, will minimize new construction in floodplains and river corridors that are currently undeveloped, and will manage and conserve upland forests to maintain and enhance floodwater attenuation.

Existing Settlements

Johnson Village is an existing historic settlement that has developed over the last two centuries. The built environment of Johnson Village represents a significant long term investment in both public infrastructure and private structures. However, due to the Village's location at the confluence of the Gihon and Lamoille Rivers, much of its developed landmass is located within a 100-year floodplain, river corridor, or both. Unless appropriate measures are taken to protect existing and new structures from flooding, this has the potential to create a conflict between the planning goals of focusing growth into existing compact settlements and flood resiliency.

Johnson Village will continue to encourage redevelopment and infill. Where new structures are located within a 100-year floodplain, they should be elevated to at least the base flood elevation and, ideally, elevated to two feet above the base flood elevation or the 500-year flood elevation, whichever is greater. Building areas beneath the base flood elevation may be used for parking or storage. In some cases, these areas may also be excavated to allow for additional compensatory storage of floodwaters.

IMPORTANT TERMS

Floodplain*:* Land area susceptible to inundation by water during a storm event. Floodplains are measured by different intervals (100 year, 500 year, etc) based on how much rain falls during a given storm event. A ***100-year floodplain*** is the flooding which results from a storm that has a 1% chance of occurring in any given year. A ***500-year floodplain*** is the flooding which results from a storm that has a 0.2% chance of occurring in any given year. A 500-year flood is larger than a 100 year flood.

Floodway: The channel of a river during a 100-year flood needed to efficiently carry and discharge the flow of water during a flood. The floodway is typically narrower than the floodplain.

Base Flood Elevation (BFE): Predicted water levels during the 100-year flood. If the BEF is 400 feet, the surface of water during the 100-year flood will be at least 400-feet above sea level. *Note that the methodology used to calculate the BFE does not account for some of the major causes of flooding in Vermont,* such as ice and debris jams or blockages caused by undersized bridges and culverts.

Freeboard: Additional elevation above the BFE, usually expressed in feet. Freeboard provides added protection for flooding caused by factors not considered when calculating the BFE, such as ice and debris jams.

River Corridor: The land area adjacent to a river that is required to accommodate the movement/meander of the river over time.

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It may not be technically feasible or cost effective to elevate all existing structures in the Village to these elevations. Efforts to improve the flood resiliency of existing structures are strongly encouraged, especially when these structures substantially improved. This may include elevating electrical systems, utilities, and mechanical equipment above the base flood elevation; using flood damage-resistant materials (as described in FIA-TB-2-93, or the most recent FEMA technical guidance available) on all areas of the structure located below the base flood elevation; relocating contents vulnerable to flooding to areas of the structure above the base flood elevation; creating positive drainage, where the grade allows water to drain away from the building; filling in basements or wet flood-proofing basements in accordance with FEMA guidelines; and/or installing floodwalls to protect openings such as windows that are located below the base flood elevation.

It will also likely not be possible to maintain an undeveloped area along the full width of the River Corridor (which usually consists of three stream widths plus fifty feet on either side of the river bank) as this would require removing most existing structures in Johnson Village. Infill should be allowed, provided a minimum buffer along the river bank is maintained. Where possible, vegetation along river banks should be re-established. This may involve working with willing property owners to convert lawns to more naturalistic vegetation. Existing surface parking areas, recreation fields, and other locations may be regraded or lowered to provide for additional flood storage.

In some cases, upstream and downstream encroachments, such as undersized bridges and culverts, berms/floodwalls, or other structures within the floodplain, may increase flood levels within the Village. Removing these impediments may alleviate some flood risks within the Village (see road/river conflicts).

Flood Resiliency and Public Infrastructure

As noted in the Utilities Section, Johnson Village owns and operates a municipal wastewater treatment plant and a municipal water supply system. Municipal water supply sources and distribution systems and wastewater treatment and collection systems are frequent victims of

IMPORTANT TERMS (cont.)

Substantial Improvement: ***A***ny reconstruction, rehabilitation, addition, or other improvement of a structure the cost of which, equals or exceeds fifty percent (50%) of the market value of the structure.

Flood-proofing: Any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents.

National Flood Insurance Program (NFIP): A program administered by the Federal Emergency Management Agency (FEMA) that provides flood insurance protection to property owners. In order for residents of a community to participate in the NFIP, the local government must adopt local floodplain regulations meeting minimum standards. Under these minimum standards, development may only occur in the floodplain if it is located outside the ***floodway*** and the lowest floor is elevated above BFE. Elevation may be accomplished through use of fill or structural support/piers.

Community Rating System (CRS): A voluntary program in which property owners in participating communities are eligible for reduced flood insurance premiums. In order to participate in CRS, a community must receive a certain number of points. Communities can receive "points" by including adopting local flood hazard regulations that are more stringent than NFIP minimums, conducting public outreach related to flood hazards and flood hazard mitigation, tracking development within the floodplain, actively working to conserve land within the floodplain, and similar measures.

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flooding, particularly remote pump stations that are not adequately flood proofed. The Village has made several upgrades to make these systems more resilient, including:

- Replacement and construction of water mains and hydrants and new 350,000-gallon storage reservoir for improved domestic water and fire service in the Village.
- Improvements to the existing Nadeau well to serve as a back-up supply.
- Replacement of the two existing water booster pump stations.

In addition, following an insurance claim for damages to the wastewater treatment facility in the amount of $112,268, the Village implemented significant measures to mitigate damage from future flood events when replacing equipment covered by insurance.

Safer Areas

The core of Johnson Village is surrounded by several neighborhoods which are less vulnerable to flooding. However, many of these areas have other limitations such as steep slopes or lack of public sewer and water infrastructure. In order to maintain Johnson Village as the center of the community, the community should work to identify appropriate areas for new, medium density residential development to occur. Ideally, these areas should be within walking distance of the core of Johnson Village and should be served by sewer and water infrastructure. In identifying potential areas, additional issues such as neighborhood character, traffic congestion, and pedestrian safety should also be addressed.

Undeveloped Floodplains and River Corridors

Undeveloped floodplains play a critical role in protecting existing settlements during flood events. The Lamoille River floodplain upstream and downstream of Johnson Village is largely undeveloped. Much of this area is used for agriculture due to favorable, alluvial soils and large flat fields which are absent in the more mountainous terrain in other areas of Town. Provided State Accepted Agricultural Practices (AAPS) are followed, agriculture is an appropriate use of these floodplain areas. Best management practices, such as establishing vegetated buffers along stream banks, are strongly encouraged. In addition to improving water quality by filtering agricultural runoff before it reaches the stream, vegetative buffers also improve floodwater attenuation and may capture sediment and debris during large flood events, helping to mitigate downstream debris jams.

Due to the Lamoille River floodplain's proximity to Route 15, it is experiencing higher development pressures than the Gihon River and Foote Brook. Conservation efforts that protect the Lamoille River floodplain from further development should be given higher priority.

While the FEMA mapped floodplain is primarily related to inundation hazards, most flood-related damage in Vermont is caused by fluvial erosion rather than inundation. Fluvial erosion occurs as rivers and streams meander across the landscape, and can range from gradual bank erosion to drastic changes in river channel location and dimensions during a large flood event. The area in which a river or stream is likely to meander is referred to as a "River Corridor." The VT Agency of Natural Resources has delineated "River Corridors" for all rivers and streams in Vermont. In should be noted that these maps are developed at a course, statewide level. As a result, the State mapped river corridors may over-depict the actual erosion hazards in some areas and under-depict them in others. Unless more accurate maps are developed, these river corridor

maps should not be used for regulatory purposes, but may serve as a guide for identifying areas for further study. Due to these inaccuracies, the Town and Village and Johnson disagree with the State's approach of attempting to map River Corridors for all rivers and streams. River corridor protection efforts should focus on those areas that have a past history of flooding or erosion that poses an actual public safety hazard.

More detailed River Corridor Management Plans have been developed for the Lamoille River, Gihon River, and Foote Brook. These plans and assessments identified and prioritized restoration projects. These projects will reduce sediment and nutrient loading to downstream receiving waters such as the Lamoille River and Lake Champlain, will reduce the risk of property damage from flooding and erosion, and will enhance the quality of in-stream habitat. Many of these projects involve conservation and re-vegetation of riparian areas. Since many of these areas are privately owned property, coordination and collaboration with property owners will be especially important to implement these projects. These plans also identified undersized bridges and culverts that may be constricting the natural flow of water. These are discussed below.

Road/River Conflicts

The term "Road/River Conflict Area" refers to areas where the natural flow of a river comes into conflict with the transportation network. This can cause damage to both the river and the roadway. For example, when a culvert is undersized, water may pond close to the road and undermine the roadbed. Undersized bridges and culverts may result in downstream erosion that destabilizes stream beds and banks and may even change the path of the stream, possibly damaging other roadways. Rivers may meander into roads, while roads may transport sediment and other contaminates into rivers. The Town of Johnson maintains inventories of culverts and roadside erosion and is working to reduce Road/River Conflicts.

The River Corridor Management Plans referenced above identify several bridges that could be either retrofitted or replaced to reduce conflicts with the river. Bridges identified include:

- The Route 15 Bridge over the Foote Brook is undersized and causing minor localized geomorphic instability. It is possible that this could be addressed through other actions, such as conservation and restoration of the floodplain upstream and downstream of the bridge.
- The Route 100C Bridge (The Twin Bridges) over the Gihon River immediately north of the Village has a narrow span —37% of the bankfull channel width, while 120% is generally recommended. The narrow span of the bridge is causing some change to the river's flow. Given the proximity of the bridge to Johnson Village, it bears monitoring whether this change in flow could negatively impact downstream infrastructure or properties. The naturally occurring bedrock and large material in the stream channel have likely assisted in the overall stream stability.
- The Scribner Covered Bridge on Rocky Road is undersized and irregularly aligned over the River. The Covered Bridge is also an important piece of Johnson's history and is one of only a few remaining covered bridges in Johnson. Any effort to improve the flow of the river in this area should also respect the historic integrity of the Bridge. The Town has been actively exploring options, such as low water crossings, that will address this

road/river conflict while retaining the covered bridge, which is an important piece of Johnson's history.

While not specifically identified in a River Corridor Management Plan, the Route 15 Bridge over the Gihon River in Johnson Village has been identified locally as potential choke point in the river that may contribute to flooding in the Village. It bears further study as to whether this is actually occurring, and if it can be addressed through infrastructure improvements such as installation of overflow/bypass culverts, or softer measures such as upstream and downstream floodplain restoration.

Before undertaking an effort as large as retrofitting and replacement of a bridge or culvert under Town jurisdiction, the community will need to weigh if it is the most effective means of addressing the issue or if there are other actions that are more cost effective.

Approximately 12% of the entire road network in Johnson (11 road miles, including the local roads and state highways) is located in the 100-year floodplain or river corridor area. These are areas with a higher likelihood for road/river conflicts. During a major flood event, these road segments may be overtopped with water or subject to washout which can disrupt the flow of traffic, frustrate rescue efforts, and strand residents.

Upland Forests

While discussions of flood resiliency usually focus on areas immediately adjacent to rivers and streams, it is important to realize that all areas are part of the watershed. Upland forests play a critical role in attenuating floodwaters. Forested land can absorb and hold water much more effectively than cleared or developed land. Maintaining fragmented, upland forests is an important component of flood resiliency. As discussed in the Land Use Section, this Plan identifies all lands above 1,500 feet and the West Settlement Area as the Forest District, which is specifically designated for forestry, watershed protection, wildlife habitat, and low impact recreation.

Why Resiliency? Why Now?

Town-wide (including the Village), there are approximately 186 structures in the floodplain or River Corridor Area. This represents 14% of all structures in Johnson, more than a third (36%) of all commercial properties, 40% of all cultural facilities, and 60% of all government buildings. This is largely due to the fact that Johnson Village serves as the hub for commerce, culture, and community. Strengthening the resiliency of Johnson Village will allow it to continue to serve as the community's center.

The Johnson Hazard Mitigation Plan contains extensive background and data regarding flooding and other natural hazards. The Hazard Mitigation Plan is incorporated into this Plan by reference. The Hazard Mitigation Plan also contains a summary of past flooding events in the Town and Village of Johnson. As most residents are aware, Johnson has a history of flooding. Since 1990 Johnson has received public assistance funding from FEMA for the following natural disasters:

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August 1995 (DR 1063)	$496,594	Record setting heavy rains caused flooding in six north-central counties. Preliminary damage assessments indicated individual losses greater than damages to public infrastructure. Flood levels exceeded the 500-year event in several areas along the Lamoille River.
January 1996 (DR 1101)	$5,290	A mid-winter flood event brought statewide destruction of private and public property with eleven counties included in the declared disaster area. This event left more than 150 communities eligible for public assistance
July 1997 (DR 1184)	$137,334	Excessive rain in several northern Vermont counties caused flash flooding and destruction of public and private property
July 1998 (DR 1228)	$7,262	Eleven of the fourteen Vermont counties experienced severe damage from excessive rainfall. The torrential rains came in much the same pattern as they had in the summer of 1997, but occurred further south than the 1997 floods. The flash flooding left many homes destroyed, roads and bridges damaged, and communities cut off from the rest of the state.
July 2008 (DR-1790)	$104,954	Severe storms and flooding caused a federal disaster to be declared in Addison, Caledonia, Essex, Lamoille, Orange, Washington, and Windsor counties on September 12, 2008. More than $104,954 in federal public assistance funds was used to repair flood damaged public infrastructure.
April/May 2011 (DR-1995)	$68,985	Excessive rain and severe floods swept across northern Vermont, with a federal disaster declared for Addison, Chittenden, Essex, Franklin, Grand Isle, Lamoille, and Orleans counties. At the height of the storms on April 27, much of the Village of Johnson was inundated with flood waters from the Lamoille River. The Grand Union grocery chain – which served residents of Johnson, Hyde Park, Cambridge, Waterville, and Belvidere– ceased operations following the flood. As part of the recovery effort, Johnson worked extensively to recruit a new store operator. Between the Town and Village there was $91,980 of eligible damage claims submitted to FEMA, of which FEMA reimbursed 75% or $68,985. In addition, the Village had an insurance claim for damages to the wastewater treatment facility (WWTF) in the amount of $112,268. The Village implemented significant measures to mitigate damage from future

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		flood events when replacing equipment covered by insurance.
August 2011 (DR-4022)	$19,622	High wind and flooding associated with Tropical Storm Irene devastated southern Vermont, causing localized damage to structures and property in northern parts of the state. While the impact was far less severe in Lamoille County than elsewhere in the state, Johnson experienced limited road, culvert, and power line damage from rain and high winds. The Town and Village had a combined expense of $21,802, of which FEMA paid a 90% share of $19,622.

This list includes only FEMA-declared disasters and funds and is not an exhaustive list for more localized weather events. Information on localized weather events are not documented in the same way as FEMA disasters.

Preparing for the Next Flood

Given that many areas of Johnson are vulnerable to flooding, especially within Johnson Village, preparation is an important element of flood resiliency. Johnson maintains an up-to-date Emergency Operations Plan to ensure that public officials and emergency responders are prepared for flooding and other emergencies.

Businesses and residents can also take steps to prepare for flooding. According to FEMA, nearly 60% of businesses close within a year of experiencing a significant flood. While not all businesses or residents may be able to afford to elevate or flood proof their properties, they can still take smaller, lower cost steps to prepare for flooding, such as storing perishable items in upper shelves, anchoring fuel tanks, and utilizing attics rather than basements and cellars for storage.

Adequately protecting homes and businesses against future flood damage requires a pool of contractors and design professionals with specialized skills in flood mitigation techniques, knowledge of FEMA rules and regulations, and experience working with “flood resistant” building materials. Vocational and post-secondary education that includes these skill sets is critical to meeting Johnson’s flood resiliency goals.

Action items:

- Continue to maintain an up-to-date Emergency Operations Plan
- Educate resident and businesses about the wide range of flood mitigation options
- Work with organizations providing vocational education to increase the pool of contractors and design professionals with skills in hazard mitigation.

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POLICIES

- Johnson Village will remain the center of the community. The community will continue to investigate appropriate areas for infill and redevelopment. Where new structures in the Village are located within a 100-year floodplain, they should be elevated to at least the base flood elevation and, ideally, elevated to two feet above the base flood elevation or the 500-year flood elevation, whichever is greater. Efforts to improve the flood resiliency of existing structures are strongly encouraged
- Outside of the Village, development within floodplain and river corridors should be avoided. If new development is to be built in such areas, it should not exacerbate flooding and fluvial erosion. Johnson Town and Village have concerns regarding the methodology used to map River Corridors. The primary focus should be on protecting areas with a known history of flooding that represents a hazard to public safety. The Lamoille River floodplain should be given priority for land conservation efforts.
- Existing floodplain encroachments caused by the transportation network should be mitigated whenever possible. This may involve upsizing bridges and culverts and/or restoring floodplain areas disturbed by past infrastructure investments.
- Upland forests should be maintained and managed to attenuate floodwaters.

IMPLEMENTATION RECOMMENDATIONS

- Ask the State to reevaluate the delineation of River Corridors in Johnson. Unless local - on the ground - conditions are not considered, these river corridor maps should not be used for regulatory purposes, but may serve as a guide for identifying areas for further study.
- In order to ensure that Johnson property owners remain eligible for flood insurance, regularly review the Town and Village Flood Hazard Regulations to ensure that they meet the minimum requirements of the National Flood Insurance Program (NFIP). Consider incorporating a requirement for one or two feet of freeboard into the regulations to provide additional protection against larger flood events, and conditions not considered in NFIP Minimum Standards, such as ice and debris jams.
- Consider participating in the Community Rating System (CRS) as a tool to reduce flood insurance premiums. Evaluate whether the reduced flood insurance premiums available to property owners through the CRS program justify the expense of the additional administrative requirements.
- Consider updating the criteria for Johnson's revolving loan fund to include elevation and flood proofing of existing structures within the floodplain, with priority given to structures located in Johnson Village.
- As needed, continue to make investments that reduce the vulnerability of the Village sewer and water systems to flooding.
- Through the planning process, work to identify appropriate areas for medium density residential development to occur. Ideally, these areas should be within walking distance of the core of Johnson Village and should be served by sewer and water infrastructure.
- Identify an organization (either local or regional) to take the lead in implementing the restoration projects identified in River Corridor Management Plans.

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- Investigate whether there are constrictions or chokepoints along the Gihon and Lamoille Rivers that contribute to flooding within the Village. Evaluate the most effective measure of mitigating these constrictions.
- Work with the Agency of Transportation to upgrade undersized bridges and culverts located on the State transportation network. Work with the Lamoille County Planning Commission to have these highway structures added to the State Transportation Improvement Program (STIP).
- Identify potential funding sources to upgrade undersized bridges and culverts located on Town Roads.
- Work with landowners in the Forest District to maintain large blocks of unfragmented, upland forest. These areas should be given priority for conservation.

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LAND USE

In an effort to implement objectives and policies contained in this plan, this plan establishes six land use districts with Johnson Village and seven land use districts within Johnson Town. This plan describes the boundaries for each of these districts, and their current and envisioned land development patterns. Finally, various strategies implementing the policies for each of these districts are presented. A map showing the approximate district is attached to this plan.

The Village land use districts include: Main Street District, Main Street West Mixed Use District, Lower Village District, College District, Upper Village District and Industrial District. In addition, this plan establishes an overlay district to protect the Village's flood hazard areas.

The Town land use districts include: Village District, Highway District, Residential District, Rural Residential/ Agricultural District, College District, Agricultural District, and Forest District.

Johnson's land development regulations
With the exception of flood hazard zoning bylaw, Johnson currently does not have zoning or subdivision bylaws to regulate its land use. This plan is the principal tool that provides guidance for land development in Johnson.

In 2014, Johnson voters at Town Meeting tasked the Selectboard to explore Form Based Code as a potential tool for regulating land development. In 2015, a citizen based Committee tasked with exploring the code, drafted a Form Based Code proposal for Johnson. If implemented, the Code will further specify the land use framework outlined in this plan, particularly in the Main Street Storefront District, Main Street General District, and Lower Village and Upper Village Districts.

LAND USE DISTRICTS WITHIN JOHNSON VILLAGE

Main Street Storefront District. The purpose of this district is to maintain and enhance the historic character of Main Street by encouraging construction projects that will replicated the form and scale of historic buildings in the district. Redeveloped and new buildings hall have a commercial use on the ground floor and otherwise accommodate a wide range of commercial, service, cultural and residential functions. Building facades shall be inviting for people walking on Main Street and frequenting Main Street businesses. Municipal water and sewage disposal is available, and compact development on small lots will be encouraged to take advantage of these services as well as to maintain the traditional pattern of development.

Main Street General District
This district is an extension of the Main Street Storefront district and as such supports commercial, cultural, service and residential roles of the Storefront district. Similarly to the Storefront district, the purpose of the Main Street General District is to maintain and enhance the historic character of Main Street. Buildings undergoing substantial renovation or buildings to be newly constructed should focus on replicating building forms similar to the form and scale of the

existing buildings. Building facades should be inviting for people walking on Main Street and frequenting Main Street businesses.

Main Street West Mixed Use District
This district recognizes the existing mixed residential commercial land use patterns and the potential for future light industrial/commercial development and or re-development of existing residential development. The district has good access to transportation, water, sewer and electric services.

Additionally, the district is adjacent to a Town Sewer Service Area (TSSA) established by the town and the village for the purposes of extending sewer service to that area. The TSSA is also delineated in the Town Plan as its own land use district. The Main Street West Mixed Use District and the Town Sewer Service Area should be treated as one land use district for planning and development purposes, regardless of the town/village boundary and as having mutually compatible land use goals and policies.

Lower Village District
This proposed district encompasses the downtown areas, which are not within the Main Street, College, or industrial districts. Land uses in these areas are medium density residential, business, professional and institutional uses. Mixed-use buildings are less common but present and mixed-use properties should still be encouraged, provided they are compatible with the neighborhood. Municipal services are available, so development on small lots should be encouraged to take advantage of the services. Where a neighborhood has many historic structures new construction should reflect the style and character.

In determining the appropriateness of new development, its scale and design should be evaluated in relation to the scale and design of existing uses and structures, and the effect of the proposed development on the continued enjoyment of existing uses in the district. For new structures, building location within the lot could be required to be compatible with the location of existing uses in the district.

The Lower Village District is more residential than the Main Street District and, therefore consideration should be given to the impacts on the enjoyment and use of existing properties when new development is proposed. The buildings within this district tend to be primarily historic structures. Any construction or reconstruction should be consistent with the styles and designs of the neighborhood.

Upper Village District
This proposed district intends to provide opportunities for medium residential development. These areas, in combination with the other village districts, should meet local needs for residential and commercial growth into the near future. Some parcels or portions of parcels, which fall within the designated district, might, upon closer inspection, be limited in their suitability for development. Planned Unit Developments should be highly encouraged in order to cluster development on the developable land without significant loss of development opportunity. Multiuse properties should be allowed.

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Where different types of land uses adjoin one another, larger lot sizes, increased setbacks, or landscaping might be appropriate in order to buffer adverse impacts. Development should be planned to minimize the number of access points onto town and state highways in order to maintain smooth traffic flow.

College District
This district accommodates the special needs of Johnson State College and related uses, while maintaining the character of the Village of Johnson.

Industrial District
The purpose of this district is to guide land use on and around the current industrial operations south of the Railroad Street bridge. The area has municipal services and 3-phase power so future development within this district should take advantage of available resources. While the current level and scale of operations should be supported, heavier industrial development may not be feasible due to the proximity to the village, flood hazard areas, and the Lamoille River.

This area has historically been the industrial district for the village with the talc and lumber mills and rail yard. With a closing of the talc mill, the end of rail use, and increased residential development in the area, future land uses should be evaluated in light of this shifting trend. Truck traffic is of primary concern as the only access to the area is via Railroad Street. Conditions should be attached to approvals, which will protect the village as a whole as well as the neighboring properties within the district.

Flood Hazard Overlay District
The purpose of this district is to prevent development that might increase flooding and to reduce losses as a result of damage from flooding. Designation of this district is also required for the Village to be eligible for the National Flood Insurance Program. This district should encompass all areas in the Village of Johnson identified as areas of special flood hazard on the National Flood Insurance Program maps. This district will be an overlay zone and will be superimposed on the other districts proposed in this plan.

LAND USE DISTRICTS WITHIN JOHNSON TOWN

The Village District
Immediately surrounding the Village of Johnson are neighborhoods that support and enhance the village. As these neighborhoods are close to the village center they should be given first consideration for future Town development. The Village District is divided into two categories- Village 1 and Village 2.

The Village Districts are those neighborhoods identified on the land use map as village (VIL) areas. Some district boundaries are defined by property boundaries while others are defined as all land within 500 feet of a specific road. Village 1 includes Gould Hill, East Johnson, West Johnson, and French Hill. Village 2 consists of Railroad Street Extension.

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The purpose of the Village District is to support the role of the Village of Johnson as the focus of many social and economic activities in the community and to provide for residential, commercial, and other compatible development that serve the needs of the community. Such development shall be constrained so as to maintain the traditional, social and physical character of the village including its historic and scenic resources, and that will not exceed the capabilities of the districts' municipal services. Facilities and services should be planned for these areas to accommodate medium density development.

These areas are primarily residential and also include forestry, agriculture, recreation, wildlife habitat, light industry and commercial uses.

This district should continue to be used as described in the preceding paragraph. In Village 1 neighborhoods**,** light industrial and commercial uses shall be generally discouraged and restricted to areas where they would minimally impact on the designated uses for these neighborhoods**.**

The Highway District

The Town of Johnson has three primary highways: Vermont Routes 15 and 100C and the local Class II road Hogback Road. The Highway District is divided into three neighborhood types- Highway 1, Highway 2, and Hogback. Development along the highway corridors should balance the goal of having a smooth flow of traffic with the needs of neighboring property owners to get access. Development should be restricted to a scale commensurate with the neighborhood it is located in.

The Highway Districts are those neighborhoods identified on the land use map as highway (HW) corridors. Highway 1 includes stretches of state highways that are immediately adjacent to the Village (Routes 15 east and west and Route 100c north). Highway 2 neighborhoods are the rural stretches of the state highway (see the Land Use Map). The Hogback Road neighborhood is the land on the north side of Hogback Road. For the most part the District is defined as those lands within 500 feet of the stated roadway. Some lands within 500 feet of the highways are not included in the District as they may be on the opposite side of the Lamoille River or other feature.

The Highway District is established to maintain a safe, efficient travel corridor and to permit some commercial and industrial development on ‘Highway 1’ neighborhoods.

These areas are primarily used for residential uses but other uses also exist including agriculture, recreation, wildlife habitat, light industry, heavy industry, and commercial purposes.

This district should continue to be used as described in the previous paragraph although the scale and density of use will be limited by the neighborhood in which it is located. While much of the land in this district is developable, future land uses should be constructed based on specific site considerations. Some considerations include development of land that is not greater than 30% slope that avoids flood hazard areas and has soils that can support the proposed activity, activities that will not threaten or impair water quality, and the presence of prime agricultural and statewide important soils suitable for use in agriculture.

The Town Sewer Service Area District
This district encompasses a Town Sewer Service Area established by the Town and The Village for the purposes of extending sewer service to the area. The district has good access to transportation, water, sewer and electric services.

This district recognizes the existing mixed residential commercial land use patterns and the potential for future light industrial/commercial development and or re-development of existing residential development.

Additionally, the district is adjacent to the Main Street Mixed Use West District located in the Village. The Town Sewer Service Area District and the Main Street Mixed Use West District should be treated as one land use district for planning and development purposes, regardless of the town/village boundary and as having mutually compatible land use goals and policies.

Well Head Protection Town Sewer Service Area District Overlay
The purpose of the district overlay is to serve a significant public benefit by protecting the public health and investment of public funds in the so called Osgood water supply by limiting land uses to those that will not harm the Public Water Supply.

The Residential District
Away from the village and major highways are some areas of medium density residential development. These areas include the neighborhoods of Foote Brook, Collins Hill, and the Gihon River neighborhood. Residential development should be permitted in these areas as they are relatively close to the village center and generally have good soils for onsite systems and close access to major travel corridors.

The Residential Districts are those neighborhoods identified on the land use map as residential (RES) areas. Some district boundaries are defined by property boundaries while others are defined as all land within 500 feet of a specific road.

The purpose of the Residential Districts is to provide for medium density residential development in areas that are located within a short distance of the village which are serviced on site with water and wastewater systems. These areas are identified to allow for the development of safe and pleasant residential settings, away from busy highways but within easy access. A variety of residential uses are appropriate including single family, duplexes and multifamily housing.

These areas are presently used primarily for residential uses but other uses also exist including forestry, agriculture, recreation, wildlife habitat, and some limited light industry and commercial uses. Some neighborhoods are more developed than others at this time.

This District should continue to be developed for residential uses. Where constraints to development exist, future land uses should be constructed based on specific site considerations.

Some considerations include development of land that is not greater than 30% slope, avoids flood hazard areas, has soils that can support the proposed activity, and activities that will not threaten or impair water quality.

Within the Foote Brook neighborhood any development should provide protection to the riparian habitat and water quality of the brook as well as protection to the deer habitat in the area.

The Rural Residential/Agricultural District

Johnson has set aside large parts of town for future rural residential development. Divided into two neighborhoods, the Rural Residential/Agricultural District (RRA) includes the Uplands neighborhood in the north and Sterling in the south.

Three quarters of the town's area is contained within the Rural Residential/ Agricultural District which includes a broad swath north of the Hogback Road and Village of Johnson extending from Waterville and Cambridge to Hyde Park and Eden in the east. To the south of Route 15 and Johnson Village, the RRA district also includes a large area southeast of French Hill to Sterling Mountain.

The purpose of the Rural Residential/Agricultural District is to provide residential and other compatible uses at densities appropriate with the physical capabilities of the land and the availability of community facilities and services on the land outside of the village areas. Planned Unit Developments (i.e. clustered housing), open space preservation, and other techniques for preserving rural character of these areas are a critical component of the plan. Development should take place in such a way that any irreplaceable, unique, or scarce resources and natural areas are not harmed.

Due to the size and extent of the District, many land uses exist within its borders. The District includes much land that is still used for forestry, agriculture, and earth resource extraction (gravel pits). There is also recreational, wildlife habitat, and some limited commercial and light industrial activities. Low density residential development is scattered throughout the District although it is almost entirely within a few hundred feet of a road.

This District should continue to be used as described above. The issues with future land use in this District lie with the amount and scale of development. Development must respect environmental and physical constraints that exist on site including slopes, soils that support proposed activity, and wildlife habitat. Preservation of open space for continued use in forestry and agriculture is desired as well.

The College District

Located within the Town and Village of Johnson is Johnson State College. The College properties have been given their own district due to the special circumstances that exist in managing land use changes on campus.

The College District includes those lands owned by the Vermont State College system.
The purpose of the College District is to accommodate the unique needs of Johnson State College and related uses.

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This area is presently used primarily for educational purposes including the associated high density residential housing, recreational uses, wildlife habitat, and some commercial activities.

This District should continue to be used for all the purposes stated above. As long as this District continues as a public educational campus it should continue to receive its own district with some latitude in order to achieve its mission.

The Agricultural District

The Lamoille River is an important player in land use planning in Johnson. The frequent flooding events of the Lamoille and its tributaries cause great amounts of damage to the village area but also provide some of the best agricultural soils in the area. The Agricultural District has been identified to provide the best use for these flood prone areas and to ensure that development on lands outside of the flood plain does not conflict with these uses.

Some District boundaries are defined by property boundaries while others are bordered by a road or defined as land greater than 500 feet of a specific road.

The purpose of the Agricultural District is to protect flood prone areas around the Lamoille River that have an economic capability for agriculture. These areas are now predominantly undeveloped except for uses associated with agriculture or forestry.

The Agricultural District is now predominantly undeveloped except for uses associated with agriculture or forestry and a few houses. There also exist some areas of wildlife habitat and recreational uses.

This District should continue to be usable for all the purposes stated above. There is very limited development potential in these areas because soil types are not suitable for septic and the substantial flood hazards exist. Any expansion of residential developments will be discouraged as they tend to conflict with agricultural uses.

The Forest District

The Forest District consists of the Mountain area, all lands above 1,500 feet, and the West Settlement area which is defined by past and present land use (see Land Use Map). These areas are best suited for timber management and wildlife habitat, and are unsuitable for development due to steep terrain and distance from roads and utilities. So as to conserve the resources of the Forest District, the Town shall encourage and promote responsible management practices, such as those defined by the State of Vermont Accepted Management Practices (AMPs).

The Forest District shall be defined as all land within the Town of Johnson that is above 1,500 feet in elevation and the areas of West Settlement identified on the Land Use Map.

Historically Johnson’s forestlands have provided significant employment and income for area residents. In addition, the forestlands provide excellent opportunities for all-season recreation. The Forest District includes portions of the Long Trail, State Forest areas, and V.A.S.T. trails.

DRAFT

Specifically, within the Forest District, Johnson plans to encourage the use of its forestlands for sustainable forestry. Residential development and other land uses that conflict with commercial forestry are to be discouraged. Looking to the future, Johnson realizes that the increase in America's population will make land for forestry, agriculture and wildlife habitat a valuable resource. The Town therefore has identified this area of town to protect large unfragmented forests for future uses as timber, recreation and wildlife habitat.

This District is presently in forest and is used for wildlife habitat and low impact recreation as well. The forests in this District are a source of employment and income for commercial and private forestry. It is also a valuable habitat for wildlife and watershed area for the rivers and streams. Except for a limited amount of development in the West Settlement neighborhood, there is no residential development in the Forest District.

This District is specifically designated for forestry, watershed protection, wildlife habitat and low impact recreation. This District may have roads built for commercial forestry purposes but not for residential or other commercial purposes. This Mountain neighborhood shall not have commercial or residential development.

POLICIES

- Manage growth and development in a manner that is respectful of Johnson's rural character, natural resources and their environmental, recreational and economic functions, and its infrastructural capacity.
- Support efforts that encourage and expand the diversity and vitality of the Village as the cultural, single family residential, commercial-service and economic hub of the Town.
- Encourage shared highway access and minimize strip development may suffice.

IMPLEMENTATION RECOMMENDATIONS

- Utilize existing development controls and state regulatory proceedings in an effort to implement the vision, and address the needs, conclusions and policies of this plan
- Develop an understanding of Form Based Code and how it could apply to Johnson. Draft a proposal for Form Based Code.

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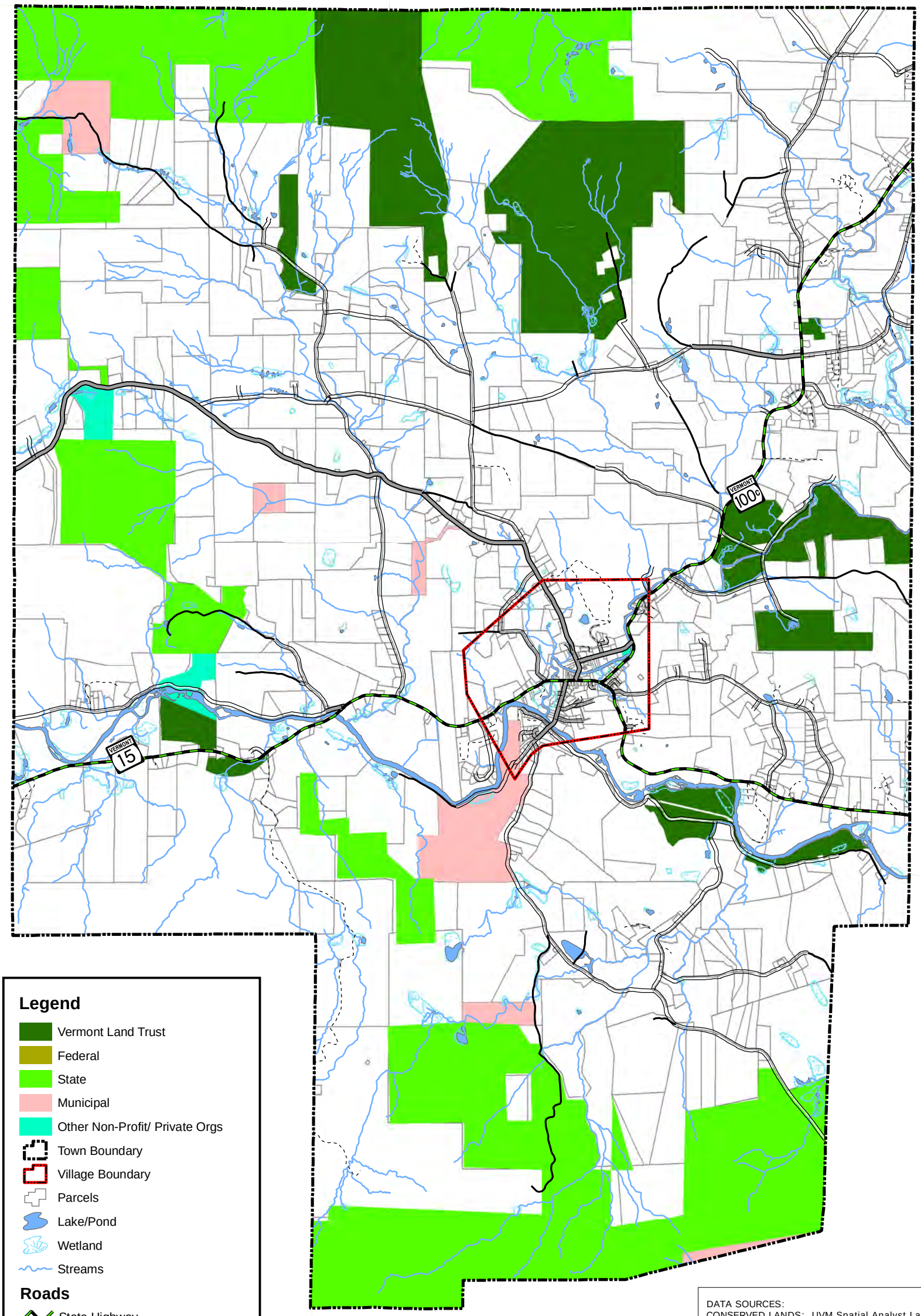
DRAFT

Johnson, Vermont
Town Plan
Conserved Lands



Legend

- Vermont Land Trust
- Federal
- State
- Municipal
- Other Non-Profit/ Private Orgs
- Town Boundary
- Village Boundary
- Parcels
- Lake/Pond
- Wetland
- Streams

Roads

- State Highway
- State Forest Highway
- Class 2 Town Highway
- Class 3 Town Highway
- Class 4 Town Highway
- Public Road, Undetermined Class
- Unknown / Private Road
- Trail

N

1 0.5 0 1 Miles

DATA SOURCES:
CONSERVED LANDS: UVM Spatial Analyst Lab, 2009.
PARCELS: Town of Johnson, 2014.
WETLANDS: Vermont Significant Wetlands Inventory, VCGI, 2010.
POLITICAL BOUNDARIES: 1:24000 USGS Quadrangles, VCGI, 1991.
ROADS: 1:5000 E-911 Road Data, VCGI, 2015.
SURFACE WATER: On-screen digitized from 1:5000 digital orthophotos using USGS 7 1/2' quadrangles and 1:20000 color infrared aerial photography as additional source material, VCGI for VHD-USGS, 2001.

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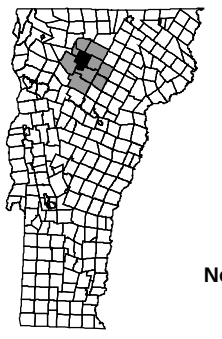

Tranverse Mercator,
VT State Plane, NAD 1983

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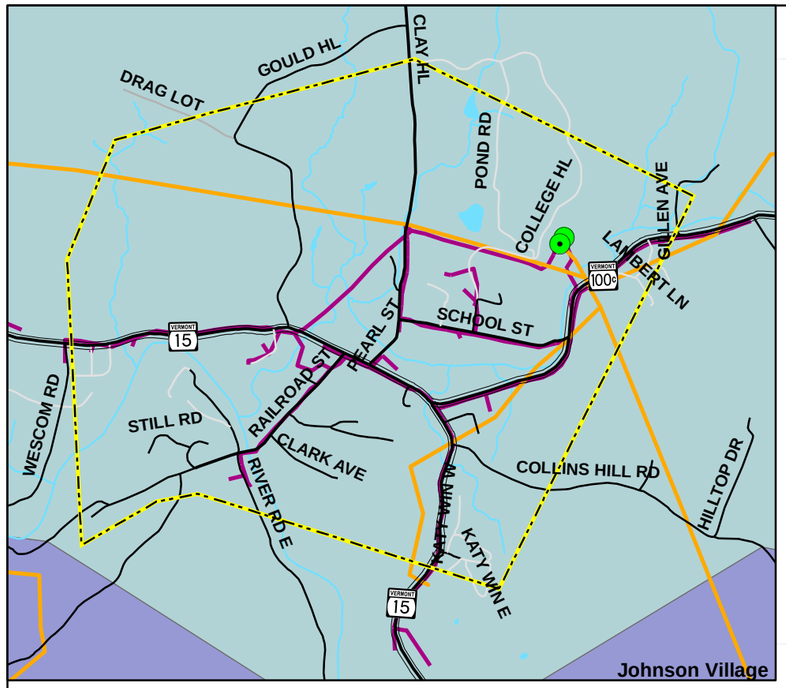
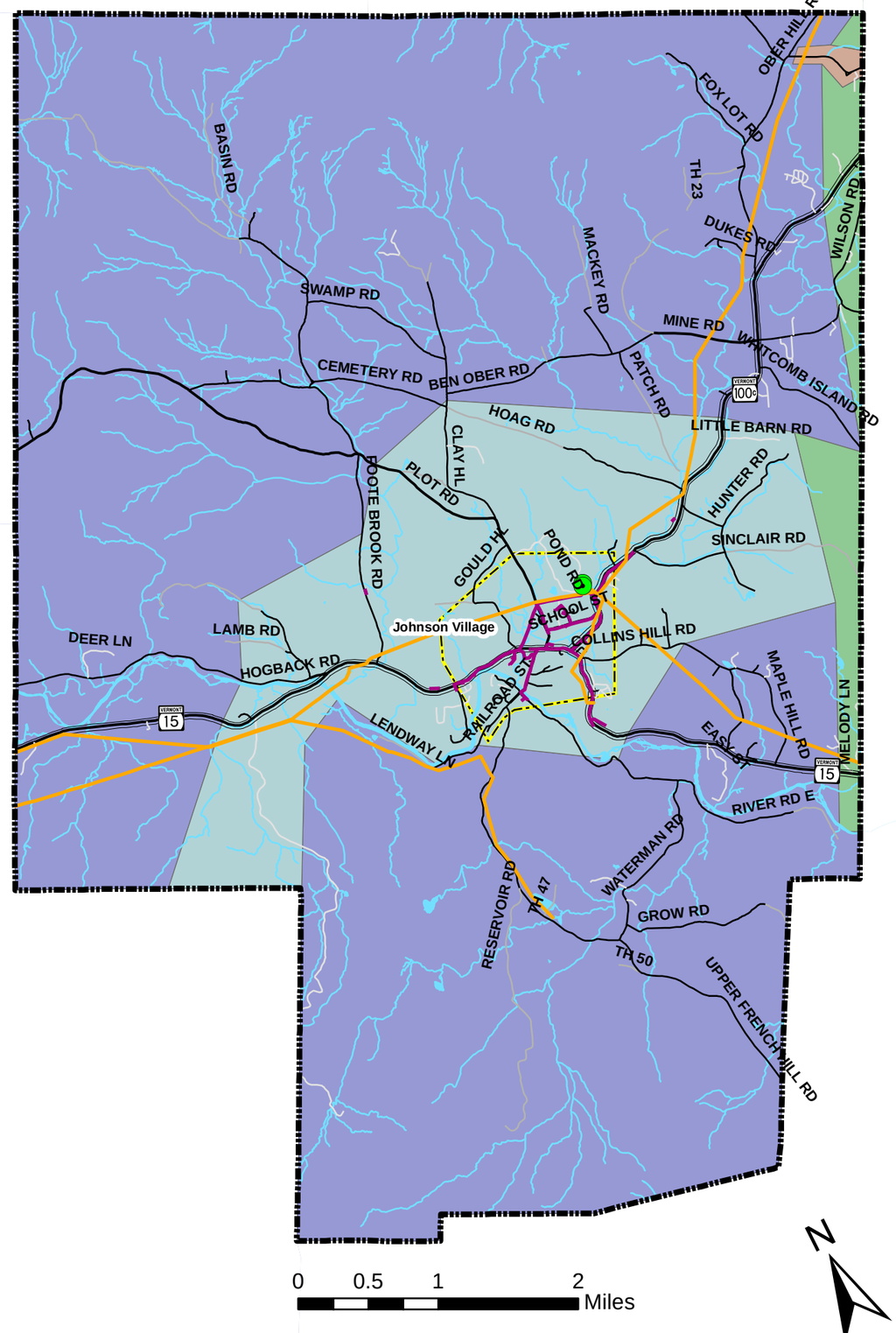
Johnson, Vermont Town Plan
Energy Utilities





Substation
High Voltage Transmission Line
Electric Transmission Line

Electric Utility Franchise Area

Green Mountain Power
Vermont Electric Co-op
Village of Hyde Park
Village of Johnson
State Highway
Class 2 Road
Class 3 Road
Class 4 Road
Private Road
Lake
Stream
Village Boundary
Town Boundary

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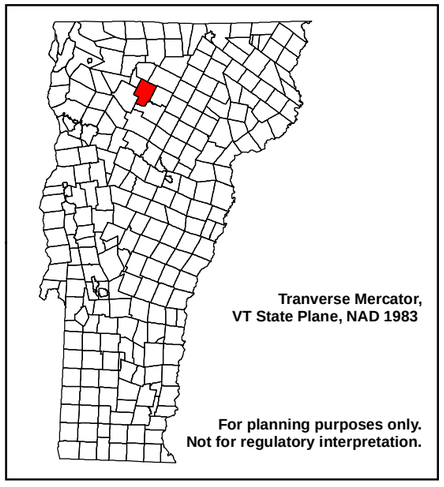
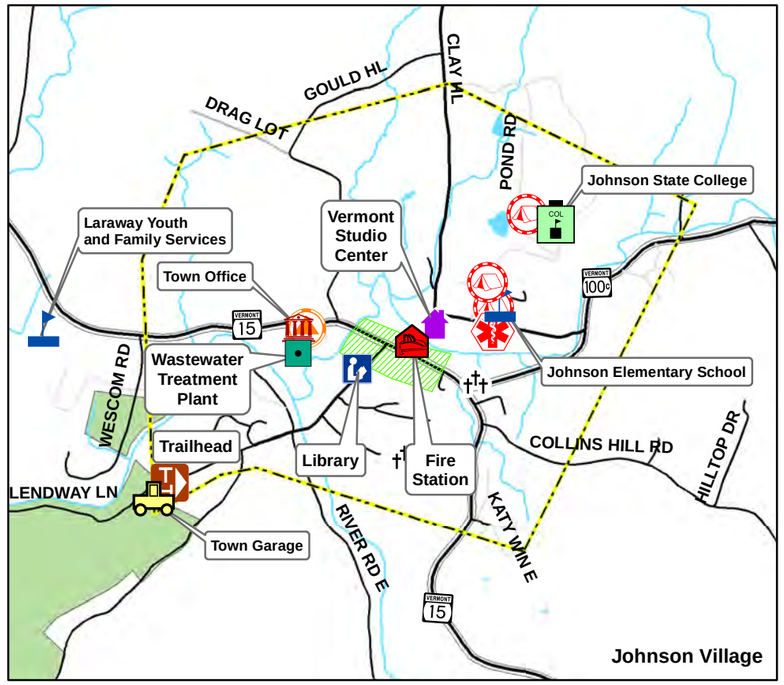
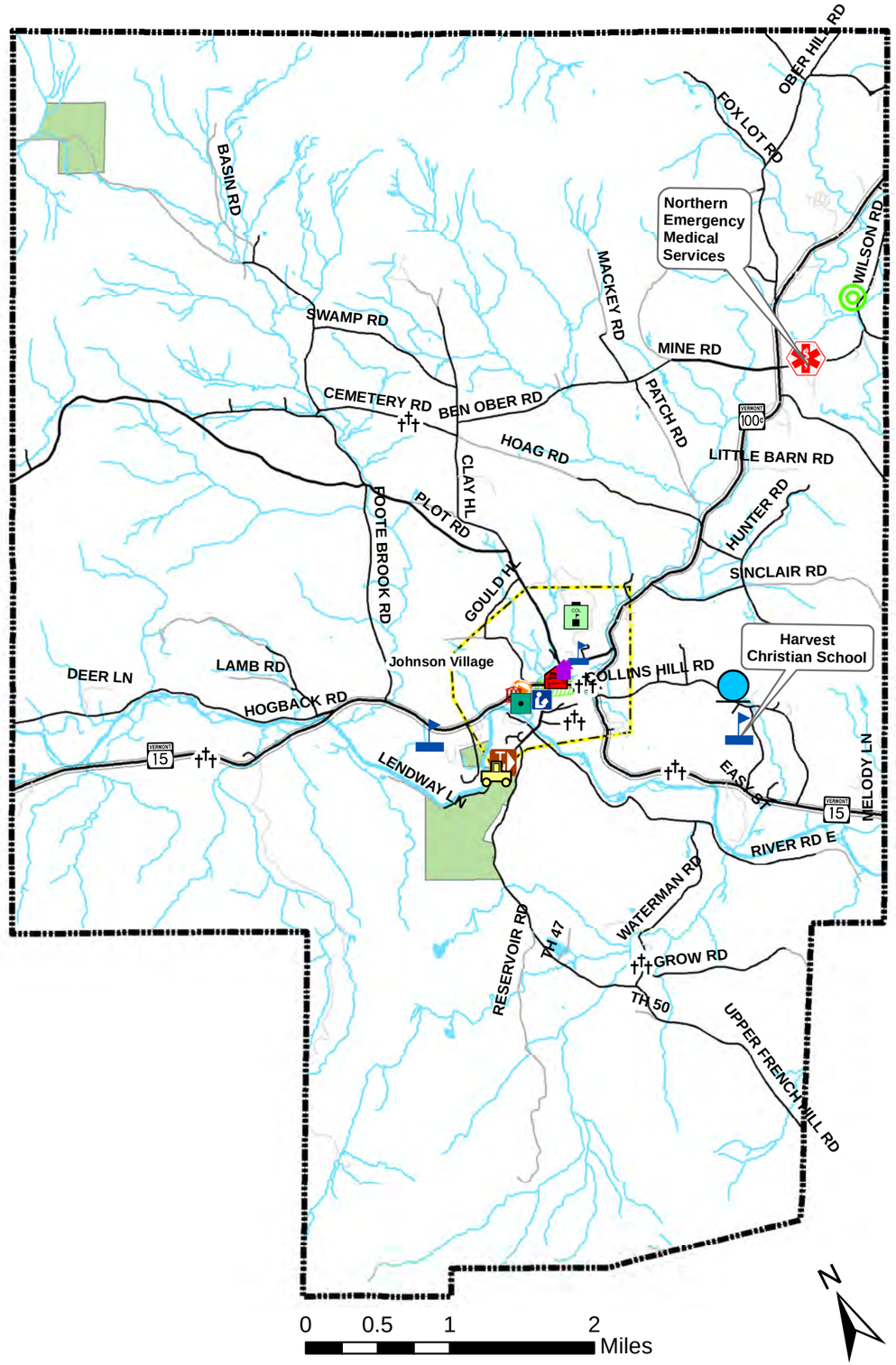


DATA SOURCES:
POLITICAL BOUNDARIES: 1:24000 USGS Quadrangles, VCGI, 1991.
ROADS: 1:5000 E-911 Road Data, 2014.
SURFACE WATER: On-screen digitized from 1:5000 digital orthophotos using USGS 7 1/2' quadrangles and 1:20000 color infrared aerial photography as additional source material, VCGI for VHD-USGS, 2001.
ELECTRICAL LINES: 34 KV from VCGI, 2003; on-screen digitized from 1:5000 digital orthophotos.
ELECTRIC UTILITY FRANCHISE AREAS: Vermont Public Service Board for VCGI, 2008.

Johnson
Public Services and Community Facilities





Cemetery
Johnson Transfer Station
Library
Vermont Studio Center
Trailhead
City / Town Garage
City / Town Office
College / University
EMS Station
Education Facility
Emergency Operations Center
Emergency Shelter
Fire Station
Wastewater Treatment Plant
Water Tank
Public Open Space
Town Boundary
Village Boundary
WiFi District Service Area

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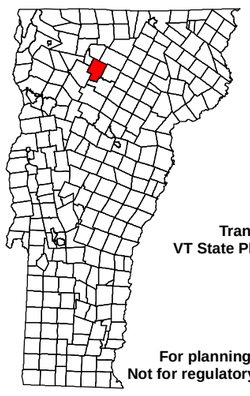

Tranverse Mercator,
VT State Plane, NAD 1983

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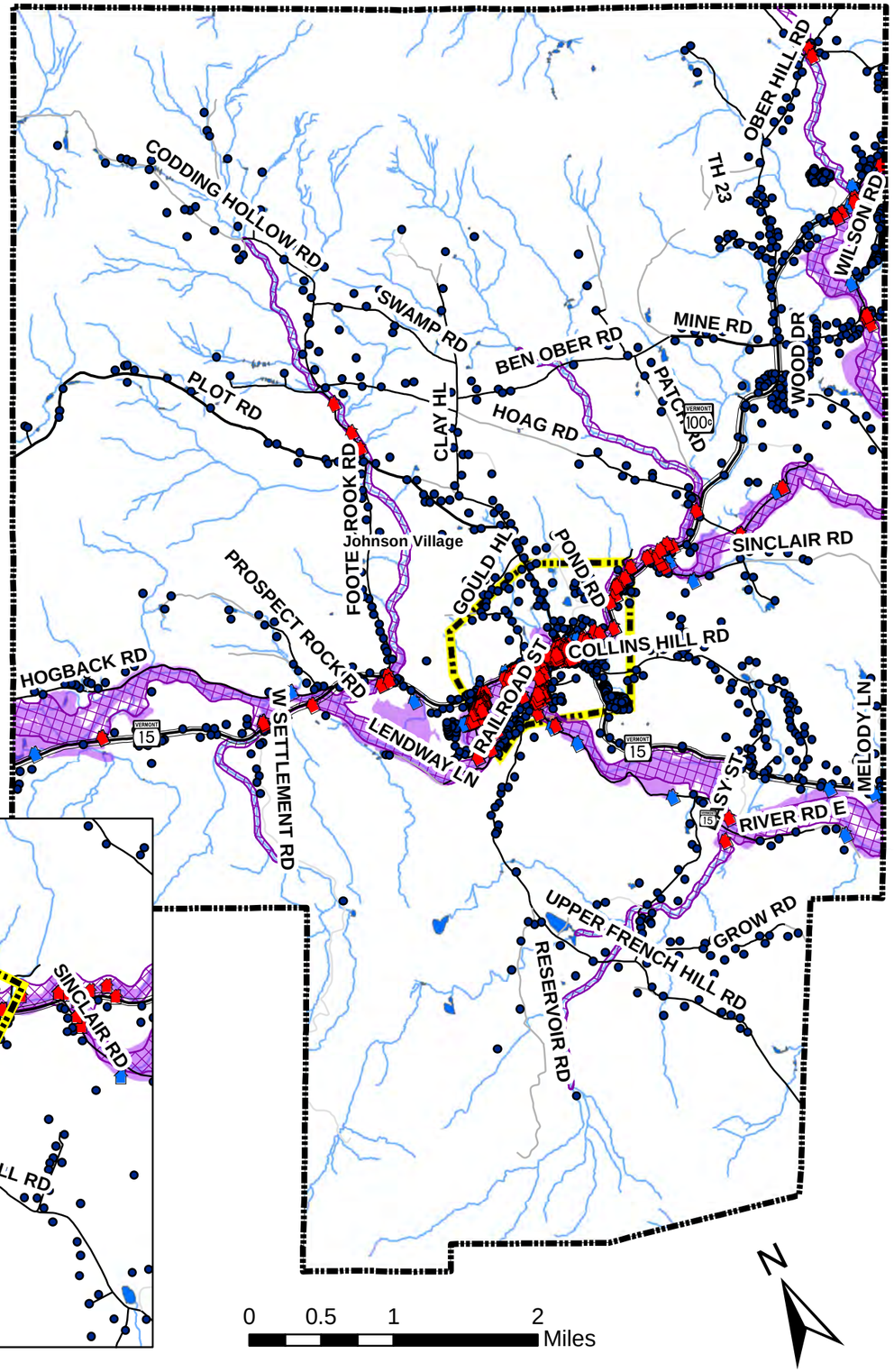
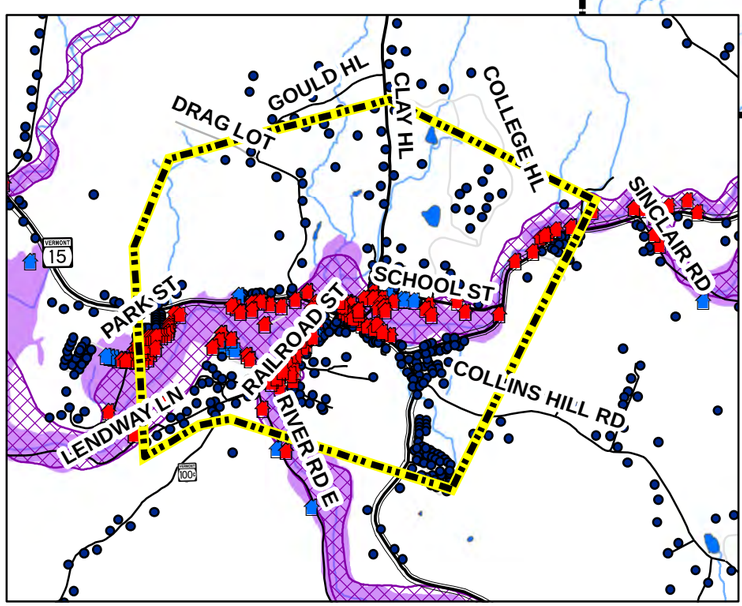
DATA SOURCES:
POLITICAL BOUNDARIES: 1:24000 USGS Quadrangles, VCGI, 1991.
ROADS: 1:5000 E-911 Road Data, 2014.
SURFACE WATER: On-screen digitized from 1:5000 digital orthophotos using USGS 7 1/2' quadrangles and 1:20000 color infrared aerial photography as additional source material, VCGI for VHD-USGS, 2001.
FACILITIES: Vermont DEMHS and Town of Johnson, 2014.

Johnson Town and Village Structures Vulnerable to Flooding

Category	Count of Structures in River Corridor or SFHA	% of All Structures
Commercial	27	36%
Cultural	2	40%
Educational	6	24%
Governmental	6	60%
Industrial	2	20%
Medical	0	0%
Racreational	2	3%
Single Family Dwelling	125	12%
Multi-Family Dwelling	16	27%
Total	**186**	**14%**





Johnson Village

- Structure in River Corridor
- Structure in Special Flood Hazard Area
- Structure Outside of SFHA and River Corridor
- State Highway
- Class 2 Road
- Class 3 Road
- Class 4 Road
- Private Road
- River Corridor
- 100 Year Flood Plain
- Lake
- Stream
- Town Boundary
- Village Boundary

DATA SOURCES:
POLITICAL BOUNDARIES: 1:24000 USGS Quadrangles, VCGI, 1991.
STRUCTURES: E911 ESITE data, 2014.
SURFACE WATER: On-screen digitized from 1:5000 digital orthophotos using USGS 7 1/2' quadrangles and 1:20000 color infrared aerial photography as additional source material, VCGI for VHD-USGS, 2001.

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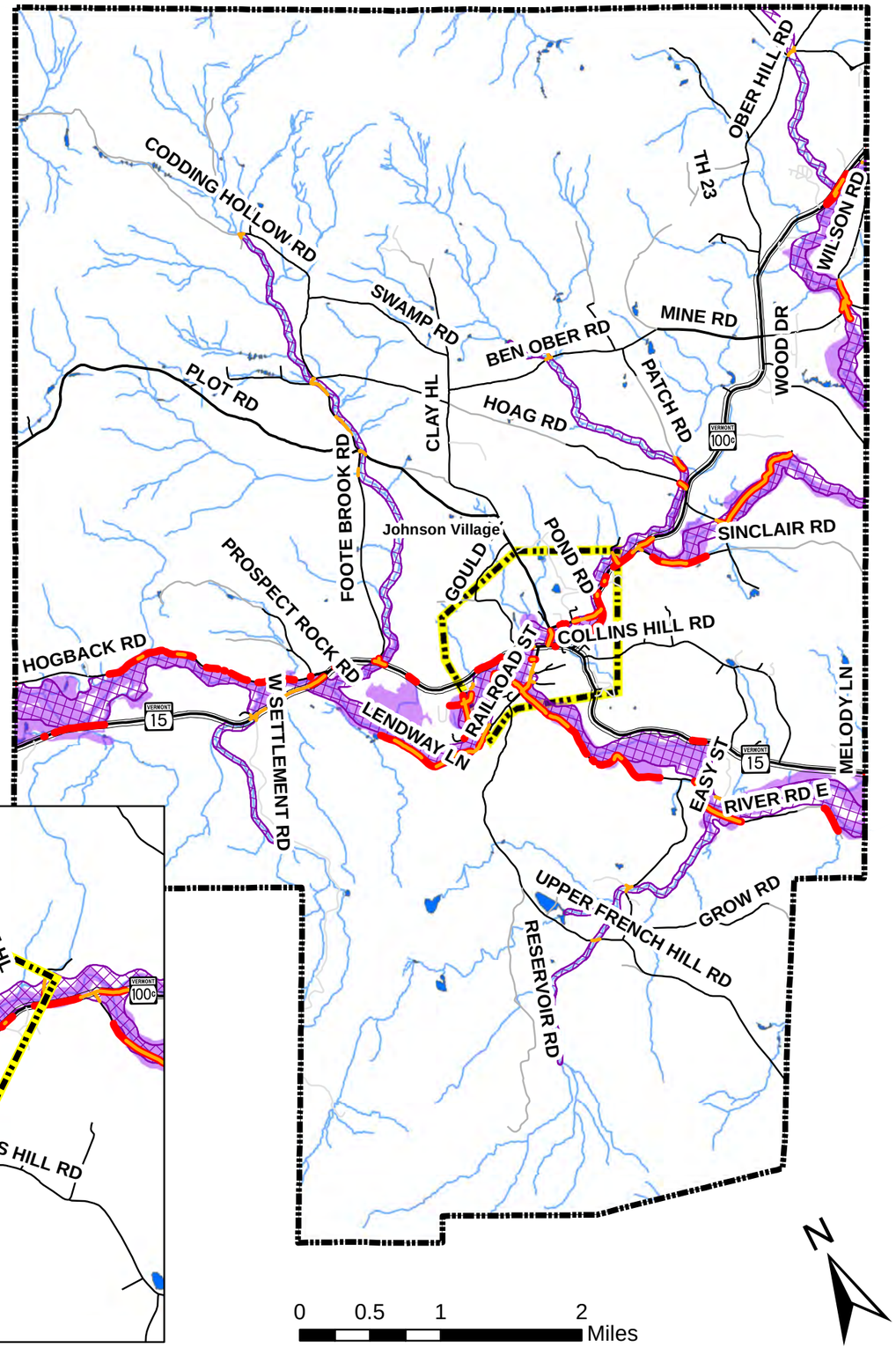
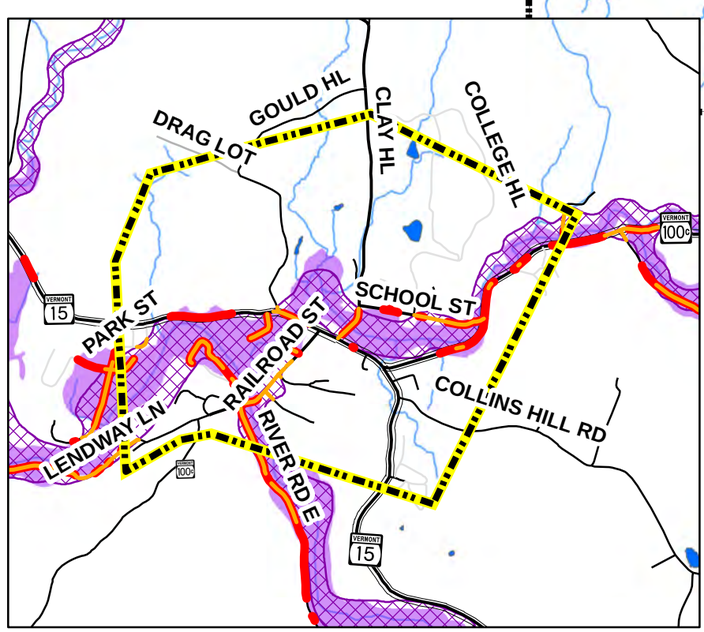
Johnson Town and Village Transportation Infrastructure Vulnerable to Flooding

AOT Class	Miles of Road in River Corridor or SFHA	Percent Road Miles
TH Class 2	0.66	9.57%
TH Class 3	6.40	15.29%
TH Class 4	0.81	5.56%
Private	0.96	6.02%
State	2.41	21.09%
Total	**11.24**	12.40%

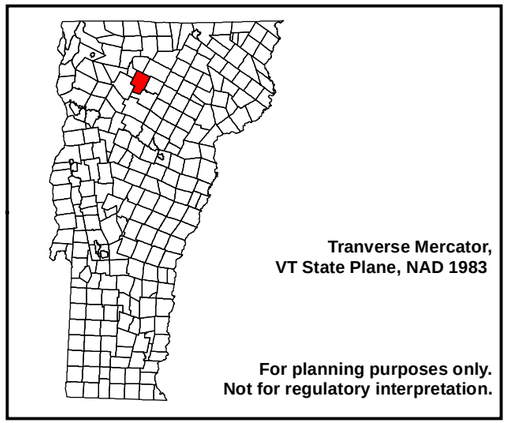




Johnson Village

- Critical Culvert within Flood Hazard Area or River Corridor
- Road Within River Corridor
- Road Within Flood Hazard Area
- State Highway
- Class 2 Road
- Class 3 Road
- Class 4 Road
- Private Road
- River Corridor
- 100 Year Flood Plain
- Lake
- Stream
- Town Boundary
- Village Boundary

DATA SOURCES:
POLITICAL BOUNDARIES: 1:24000 USGS Quadrangles, VCGI, 1991.
ROADS: 1:5000 E-911 Road Data, 2014.
SURFACE WATER: On-screen digitized from 1:5000 digital orthophotos using USGS 7 1/2' quadrangles and 1:20000 color infrared aerial photography as additional source material, VCGI for VHD-USGS, 2001.



Tranverse Mercator, VT State Plane, NAD 1983

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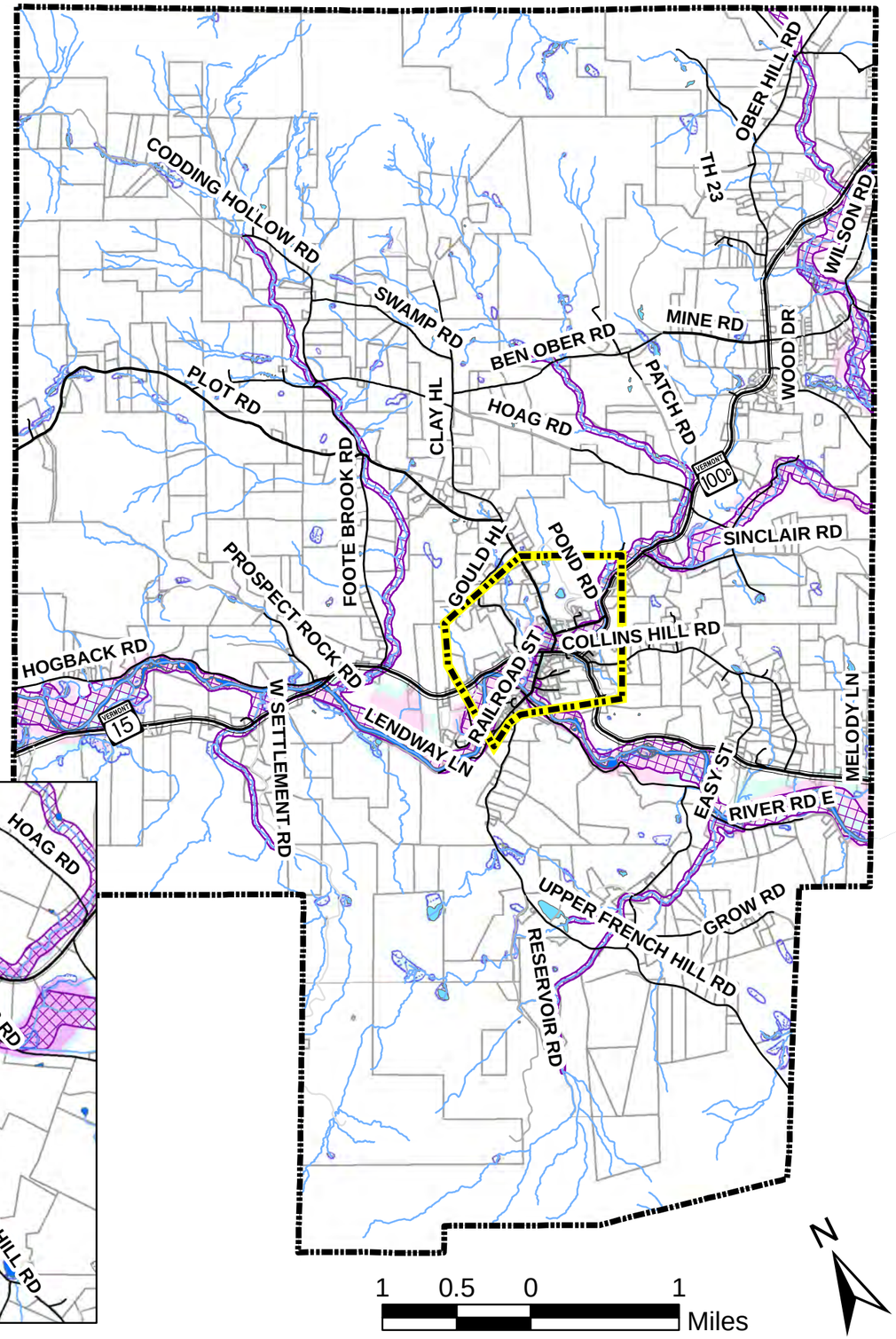
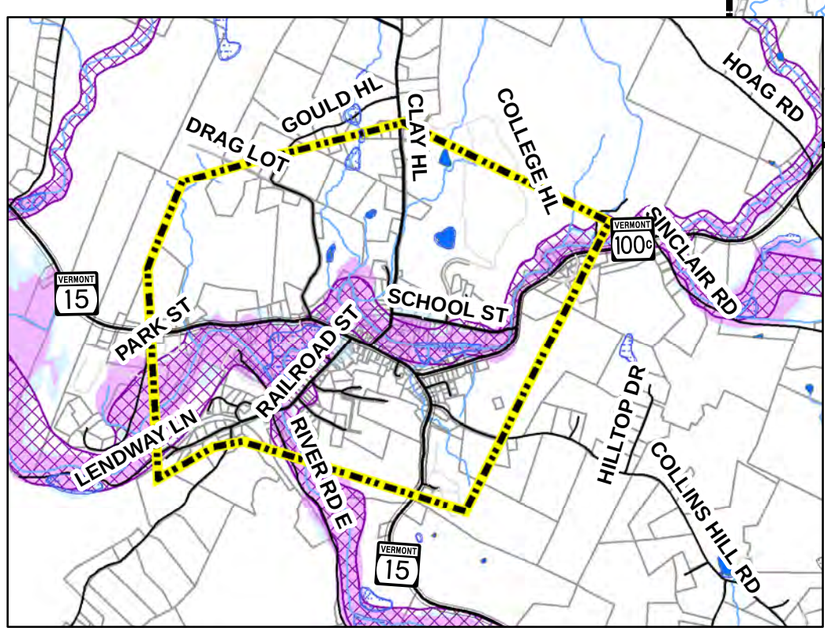
Johnson, Vermont
Town Plan
100 and 500 Year Flood Zones and River Corridors





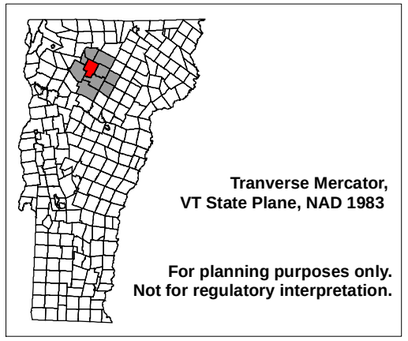
Johnson Village

- Statewide River Corridor
- Wetland
- 100-Year Flood Zone
- 500-Year Flood Zone
- Lake
- Parcels
- Village Boundary
- Town Boundary
- Stream

Roads

- State Highway
- Class 2 Road
- Class 3 Road
- Class 4 Road
- Private Road

DATA SOURCES:
POLITICAL BOUNDARIES: 1:24000 USGS Quadrangles, VCGI, 1991.
SURFACE WATER: On-screen digitized from 1:5000 digital orthophotos using USGS 7 1/2' quadrangles and 1:20000 color infrared aerial photography as additional source material, VCGI for VHD-USGS, 2001.
STATEWIDE RIVER CORRIDOR: ANR Natural Resource Atlas, 2015.
WETLANDS: Vermont Significant Wetland Inventory, VCGI, 2010
100-YEAR AND 500-YEAR FLOOD PLAIN: Digitized from FEMA Flood Insurance Rate Maps, LCPC, 1983. Floodplains for planning purposes only. Refer to the VANR-DEC, Water Quality Division, Floodplain Coordinator for official floodplain determinations. (802) 241-3759.



Tranverse Mercator, VT State Plane, NAD 1983

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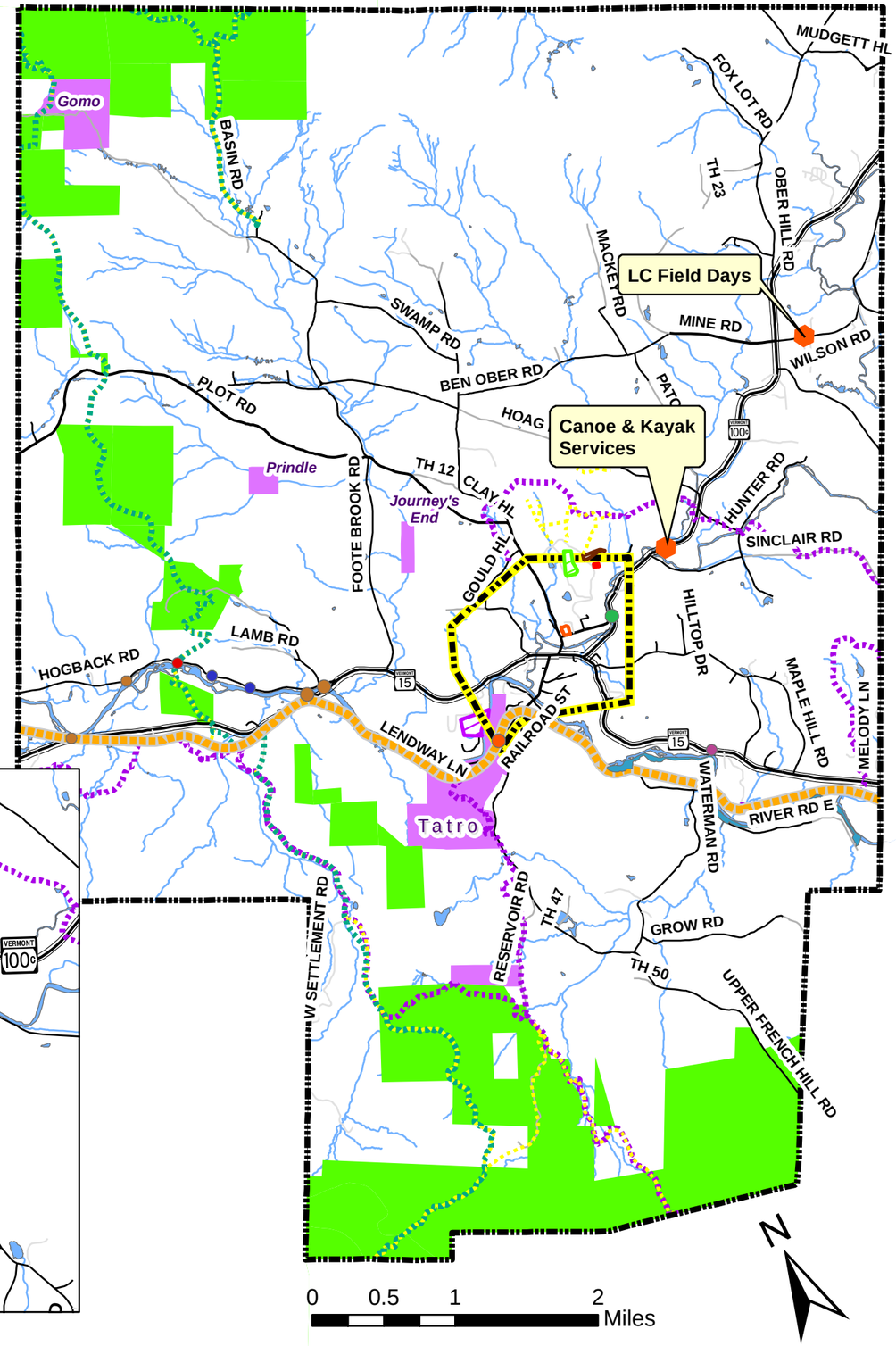
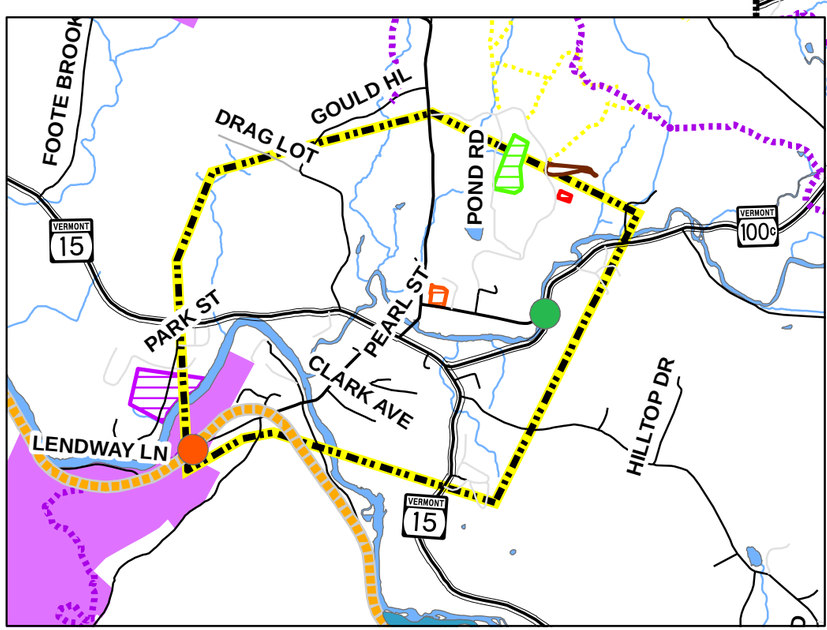
Johnson Town and Village Recreation



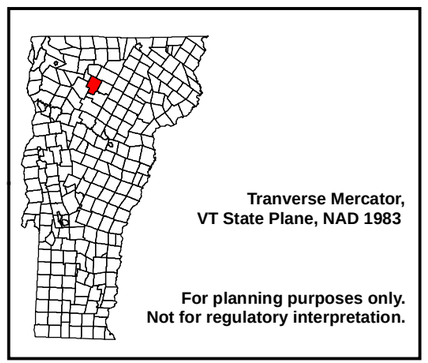


Johnson Village

Recreational Access Points

- parking
- parking/fishing
- parking/fishing/boating access
- parking/fishing/canoe access
- parking/river overlook
- recreational area
- residential camp
- Athletic Field
- Recreational Field
- Tennis Courts
- Terrain Park
- River park
- State Owned
- Town/Village Owned
- Town Boundary
- Village Boundary
- Lake/Pond
- Lamoille Valley Rail Trail
- Long Trail
- Catamount Trail
- Local Trail or Path
- VAST Trail
- Stream
- State Highway
- Class 2 Road
- Class 3 Road
- Class 4 Road
- Private Road

DATA SOURCES:
POLITICAL BOUNDARIES: 1:24000 USGS Quadrangles, VCGI, 1991.
ROADS: 1:5000 E-911 Road Data, 2015.
TRAILS: VCGI, 1991; VAST, 2011; Catamount Trail Association, 2004, Johnson State College, 2004.
SURFACE WATER: On-screen digitized from 1:5000 digital orthophotos using USGS 7 1/2' quadrangles and 1:20000 color infrared aerial photography as additional source material, VCGI for VHD-USGS, 2001.
CONSERVED LANDS: UVM Spatial Analyst Lab, 2009.
TOWN OWNED LANDS: Town of Johnson, 2014.
RECREATION ACCESS POINTS: LCPC, 2005.



Tranverse Mercator,
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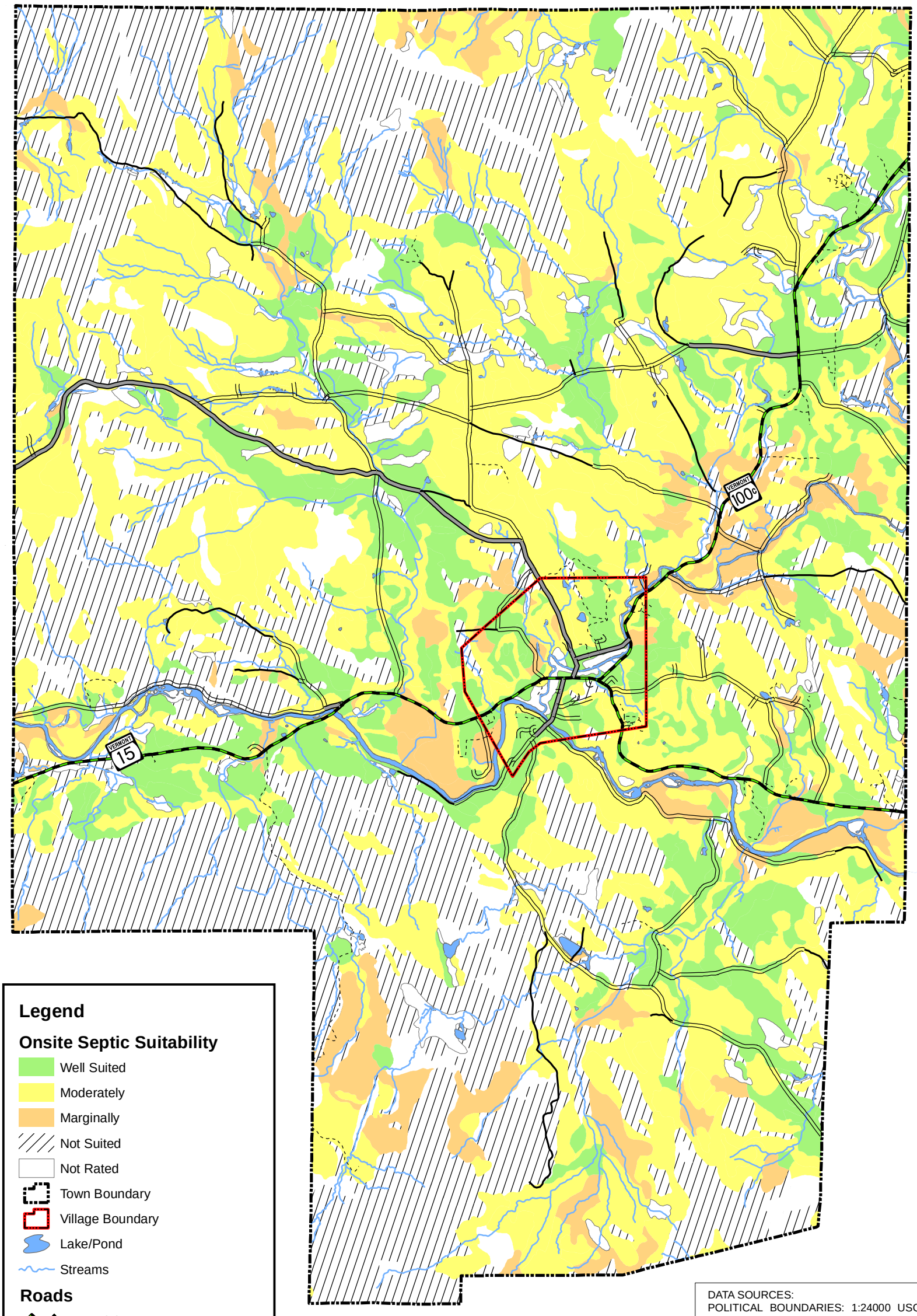
Johnson, Vermont
Town Plan
Onsite Septic Suitability Map



Legend

Onsite Septic Suitability

- Well Suited
- Moderately
- Marginally
- Not Suited
- Not Rated
- Town Boundary
- Village Boundary
- Lake/Pond
- Streams

Roads

- State Highway
- State Forest Highway
- Class 2 Town Highway
- Class 3 Town Highway
- Class 4 Town Highway
- Public Road, Undetermined Class
- Unknown / Private Road
- Trail

N

1 0.5 0 1 Miles

DATA SOURCES:
POLITICAL BOUNDARIES: 1:24000 USGS Quadrangles, VCGI, 1991.
ROADS: 1:5000 E-911 Road Data, 2014.
SURFACE WATER: On-screen digitized from 1:5000 digital orthophotos using USGS 7 1/2' quadrangles and 1:20000 color infrared aerial photography as additional source material, VCGI for VHD-USGS, 2001.
SEPTIC SUITABILITY: Optically scanned from 1:20,000 USDA-NRCS Soil maps, VCGI, 2007.

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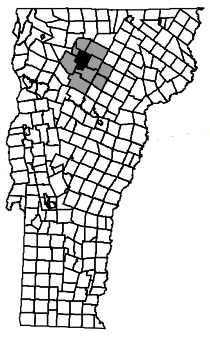

Tranverse Mercator,
VT State Plane, NAD 1983

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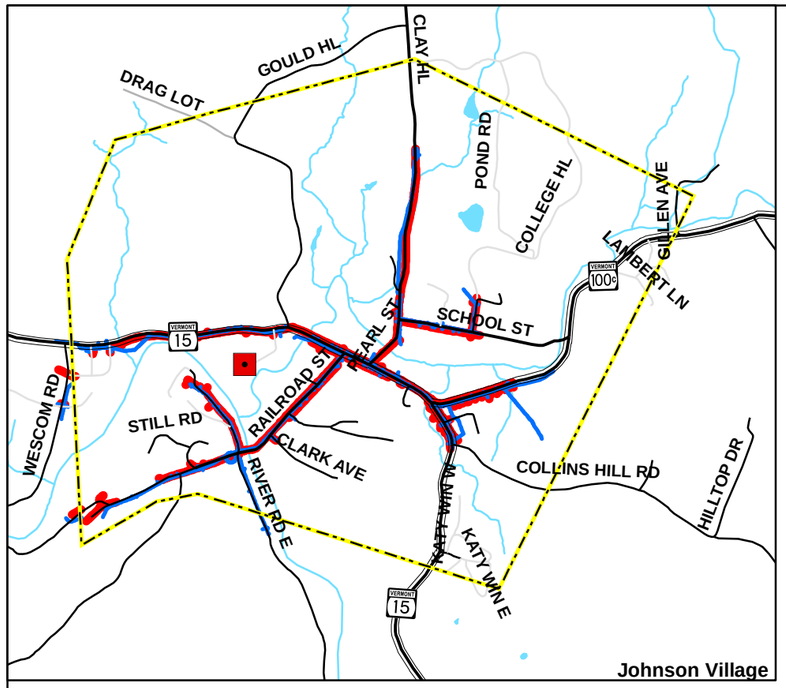
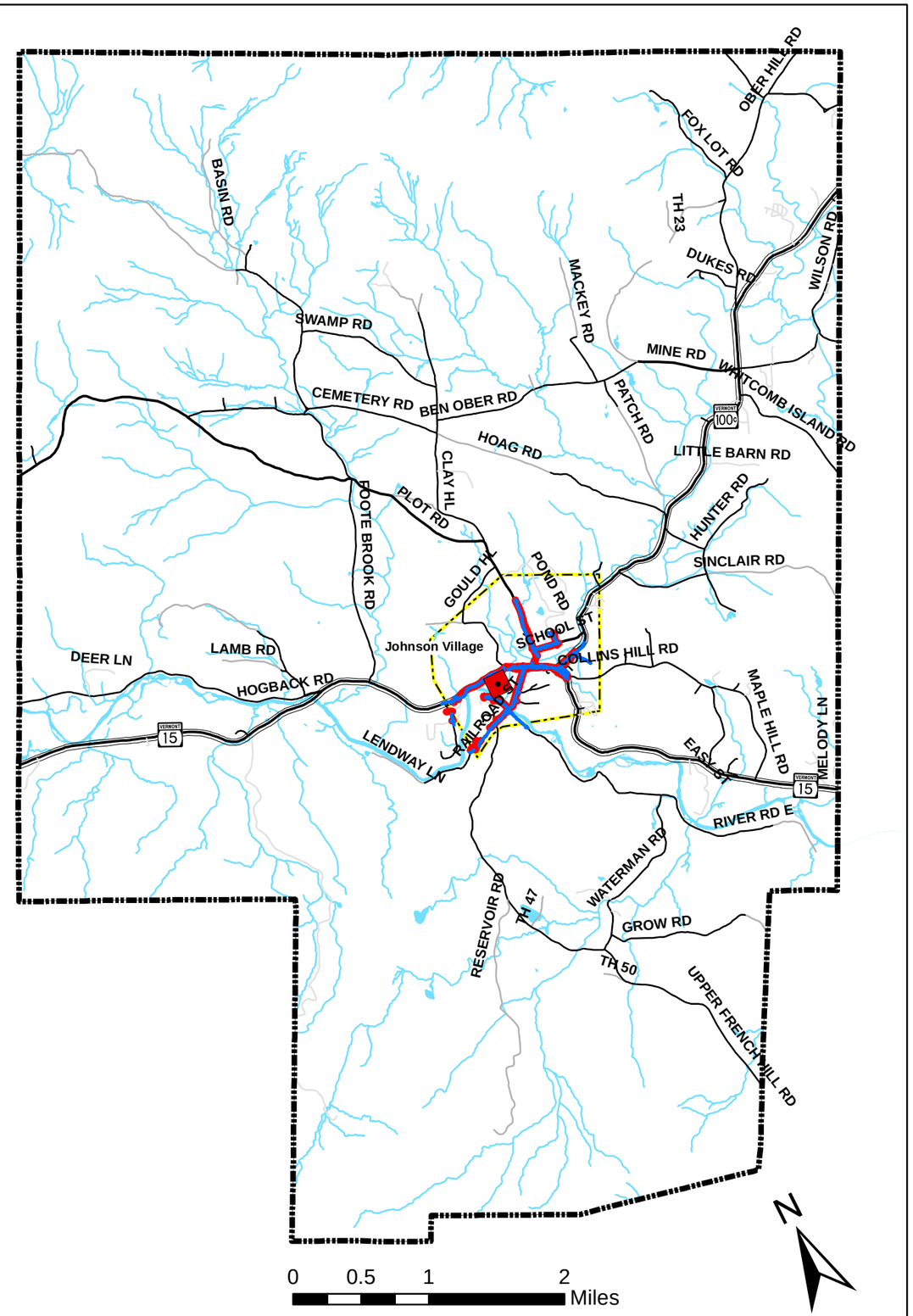
Johnson, Vermont
Town Plan
Sewer and Water Lines





Wastewater Treatment Plant
Waterline
Sewerline
State Highway
Class 2 Road
Class 3 Road
Class 4 Road
Private Road
Lake
Stream
Village Boundary
Town Boundary

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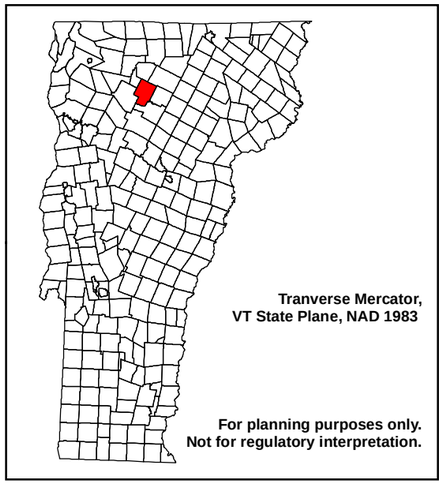
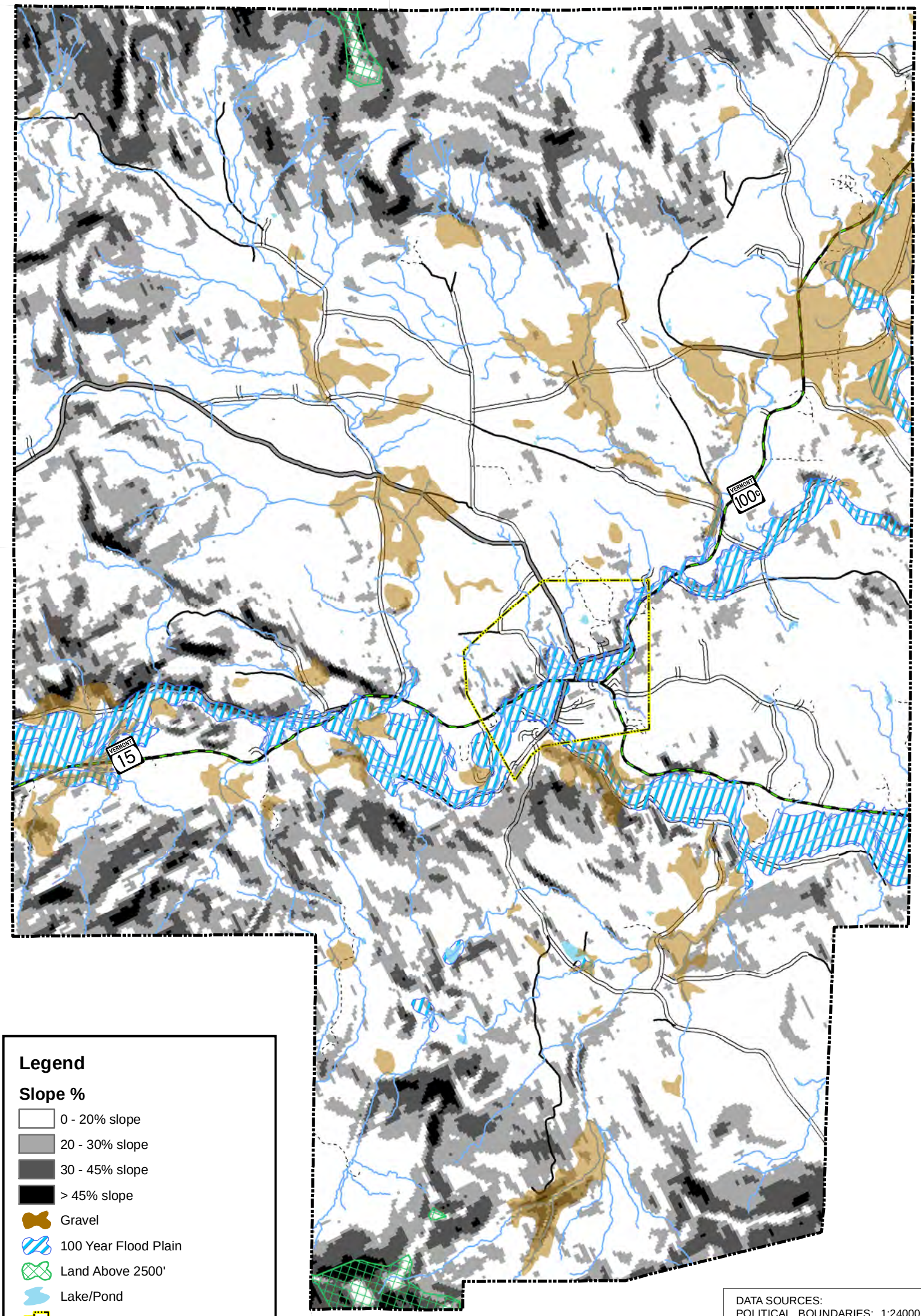


DATA SOURCES:
POLITICAL BOUNDARIES: 1:24000 USGS Quadrangles, VCGI, 1991.
ROADS: 1:5000 E-911 Road Data, 2014.
SURFACE WATER: On-screen digitized from 1:5000 digital orthophotos using USGS 7 1/2' quadrangles and 1:20000 color infrared aerial photography as additional source material, VCGI for VHD-USGS, 2001.
WATER AND SEWER LINES: VCGI, 2011.

Johnson, Vermont
Town Plan
Soil Limitations Map



Legend

Slope %

- 0 - 20% slope
- 20 - 30% slope
- 30 - 45% slope
- > 45% slope
- Gravel
- 100 Year Flood Plain
- Land Above 2500'
- Lake/Pond
- Village Boundary
- Town Boundary
- Streams

Roads

- State Highway
- State Forest Highway
- Class 2 Town Highway
- Class 3 Town Highway
- Class 4 Town Highway
- Public Road, Undetermined Class
- Unknown / Private Road
- Trail

N

1 0.5 0 1 Miles

DATA SOURCES:
POLITICAL BOUNDARIES: 1:24000 USGS Quadrangles, VCGI, 1991.
ROADS: 1:5000 E-911 Road Data, 2014.
SURFACE WATER: On-screen digitized from 1:5000 digital orthophotos using USGS 7 1/2' quadrangles and 1:20000 color infrared aerial photography as additional source

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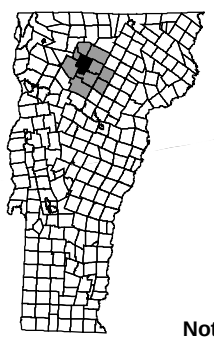

Tranverse Mercator, VT State Plane, NAD 1983

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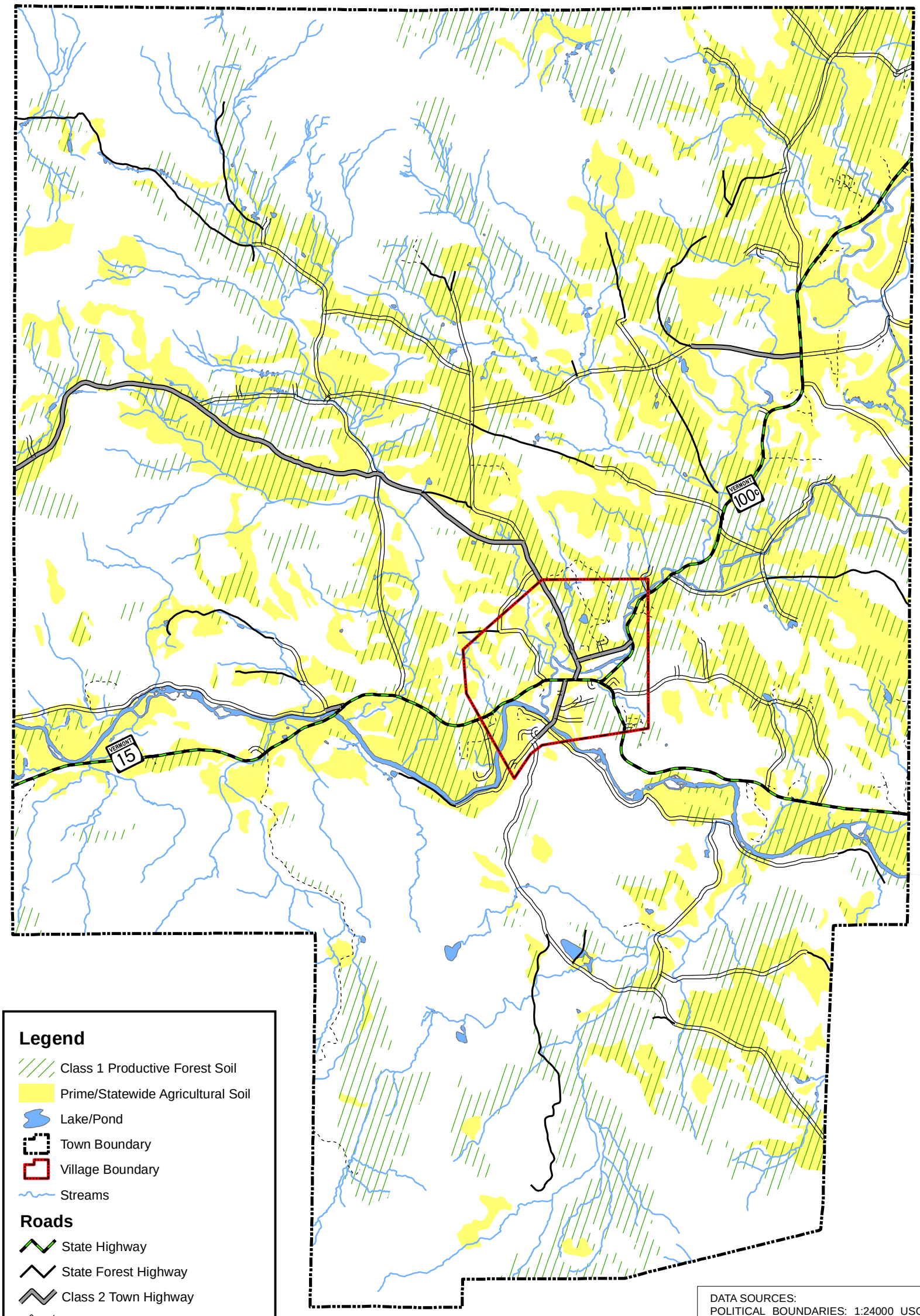
Johnson, Vermont
Town Plan
Soil Resources Map



Legend

- Class 1 Productive Forest Soil
- Prime/Statewide Agricultural Soil
- Lake/Pond
- Town Boundary
- Village Boundary
- Streams

Roads

- State Highway
- State Forest Highway
- Class 2 Town Highway
- Class 3 Town Highway
- Class 4 Town Highway
- Public Road, Undetermined Class
- Unknown / Private Road
- Trail

N

0 0.5 1 2 Miles

DATA SOURCES:
POLITICAL BOUNDARIES: 1:24000 USGS Quadrangles, VCGI, 1991.
ROADS: 1:5000 E-911 Road Data, 2014.
SURFACE WATER: On-screen digitized from 1:5000 digital orthophotos using USGS 7 1/2' quadrangles and 1:20000 color infrared aerial photography as additional source material, VCGI for VHD-USGS, 2001.
SOILS: Optically scanned from 1:20,000 USDA-NRCS Soil maps, VCGI, 2007.

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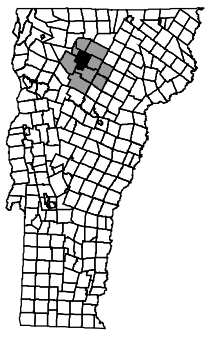

Tranverse Mercator,
VT State Plane, NAD 1983

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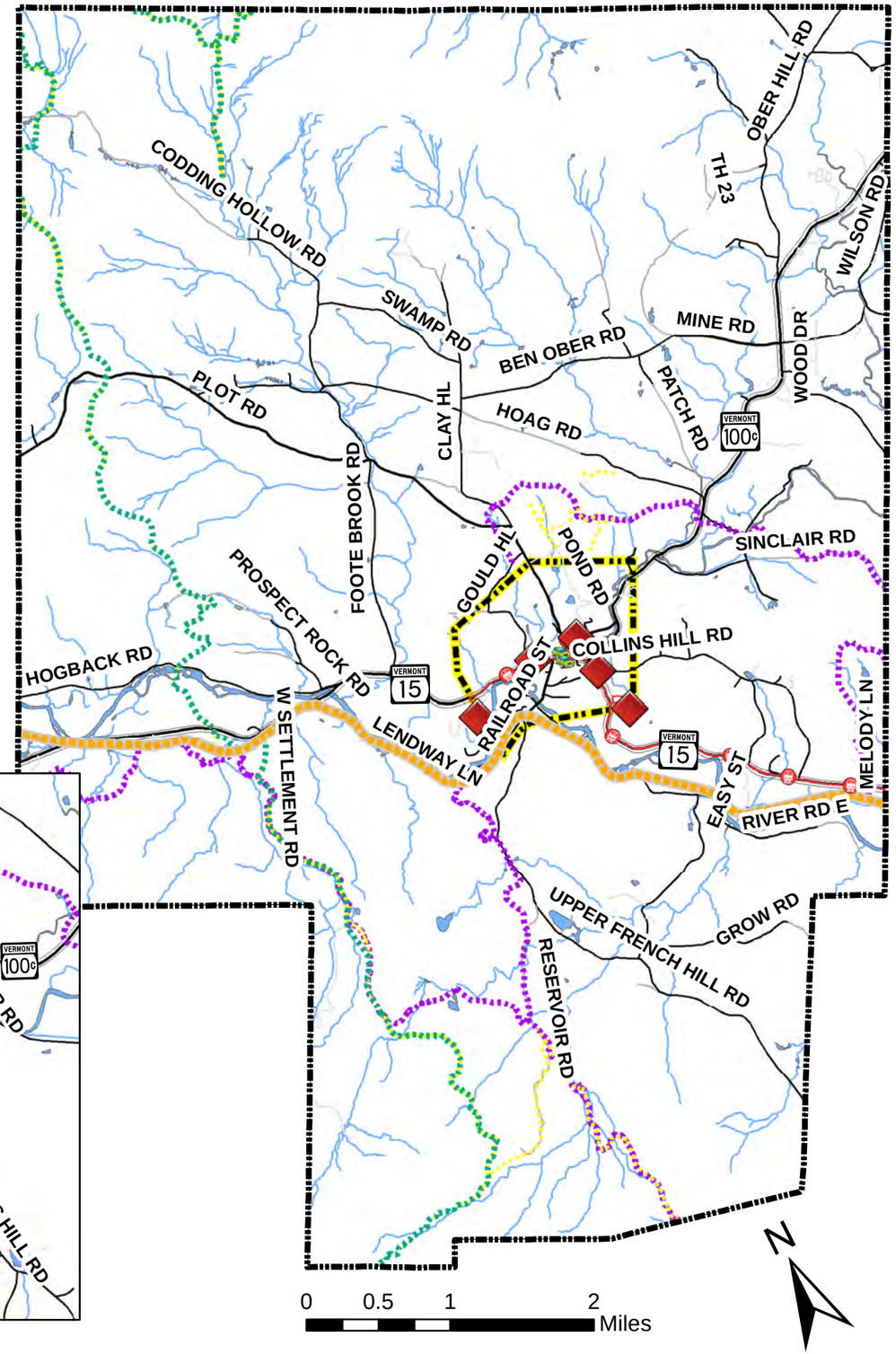
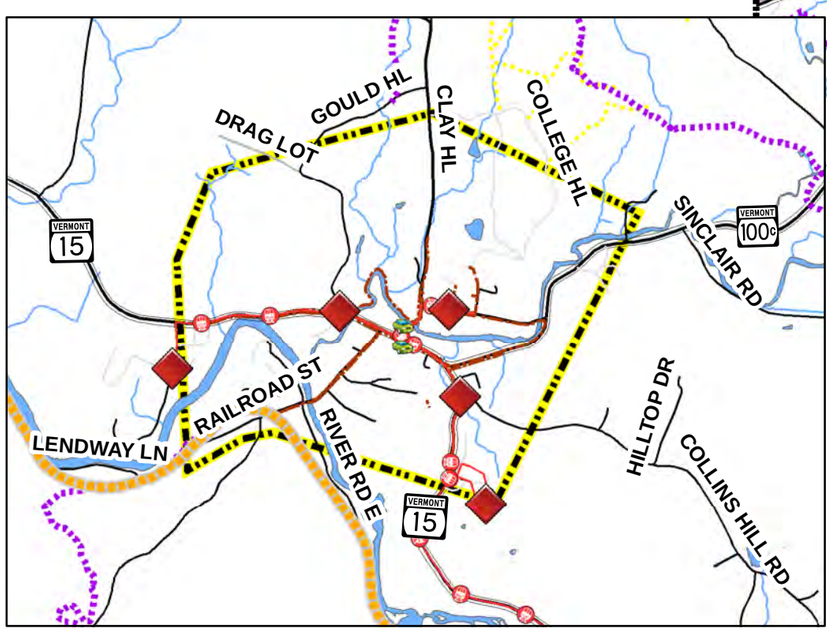
Johnson Town and Village Transportation Infrastructure

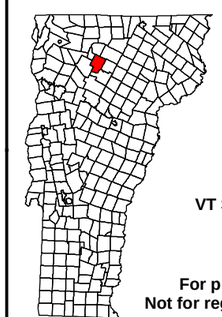




Johnson Village

- Public Parking Areas
- Johnson Shopper Bus Stops
- Johnson Shopper Transit Route
- Lamoille Valley Rail Trail
- Long Trail
- Catamount Trail
- Local Trail or Path
- VAST Trail
- Town Boundary
- Village Boundary
- Lake/Pond
- Stream
- State Highway
- Class 2 Road
- Class 3 Road
- Class 4 Road
- Private Road
- Sidewalks

DATA SOURCES:
POLITICAL BOUNDARIES: 1:24000 USGS Quadrangles, VCGI, 1991.
ROADS: 1:5000 E-911 Road Data, 2015.
TRAILS: VCGI, 1991; VAST, 2011; Catamount Trail Association, 2004, Johnson State College, 2004.
TRANSIT ROUTE: Digitized by LCPC in 2011 from published RCT route.
SURFACE WATER: On-screen digitized from 1:5000 digital orthophotos using USGS 7 1/2' quadrangles and 1:20000 color infrared aerial photography as additional source material, VCGI for VHD-USGS, 2001.



Tranverse Mercator, VT State Plane, NAD 1983

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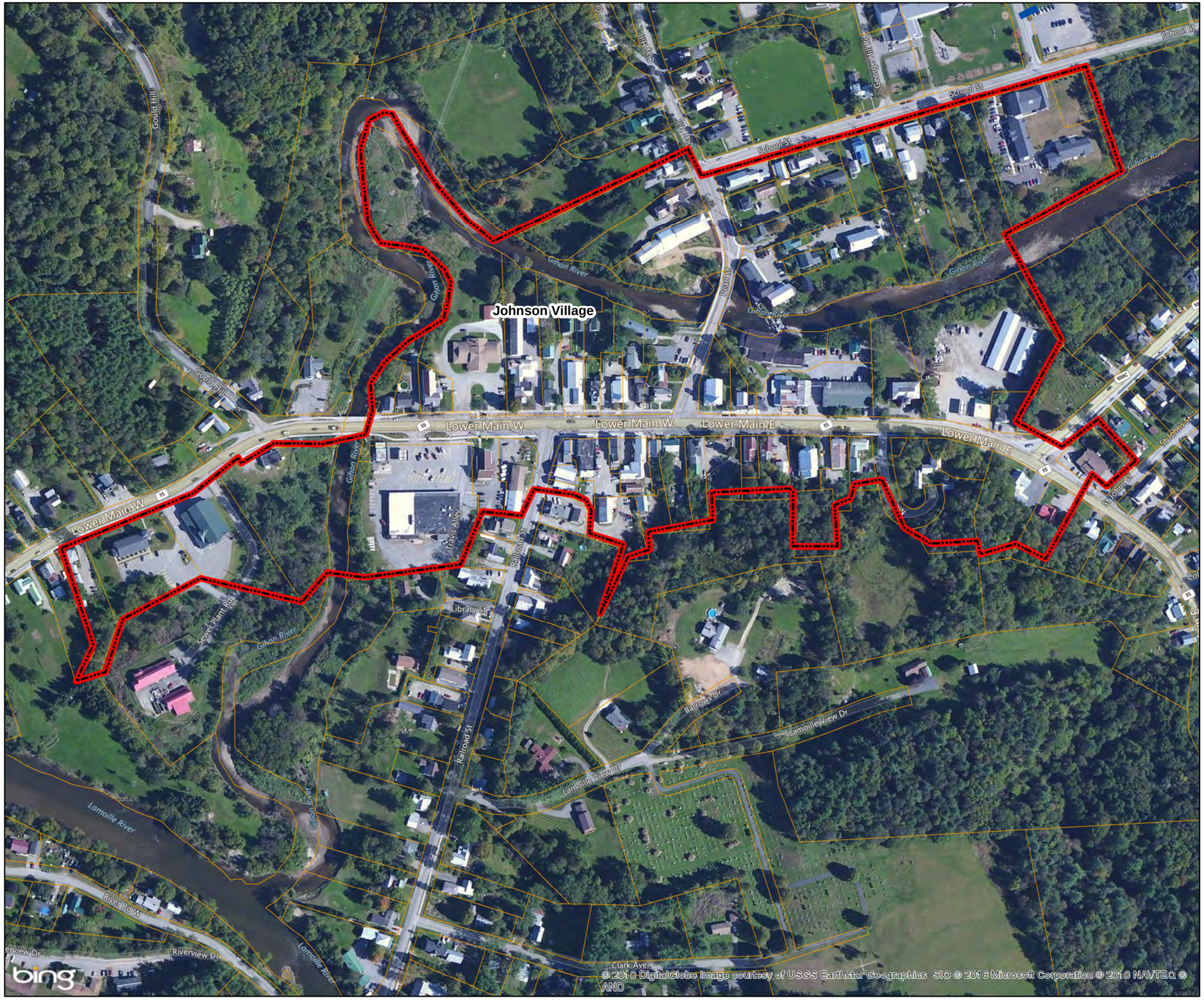
Johnson Designated Village Center Boundary



Designated Village Center Boundary

Parcels

Data Source:
PARCELS: Town of Johnson, 2014

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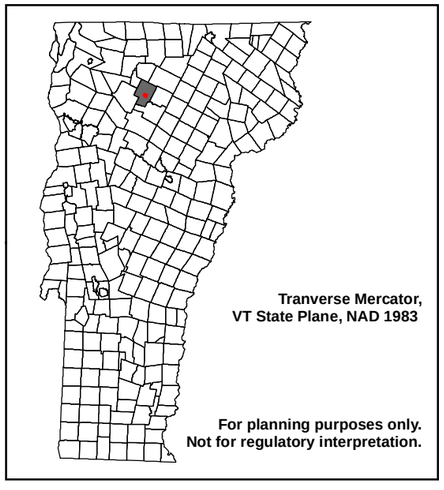
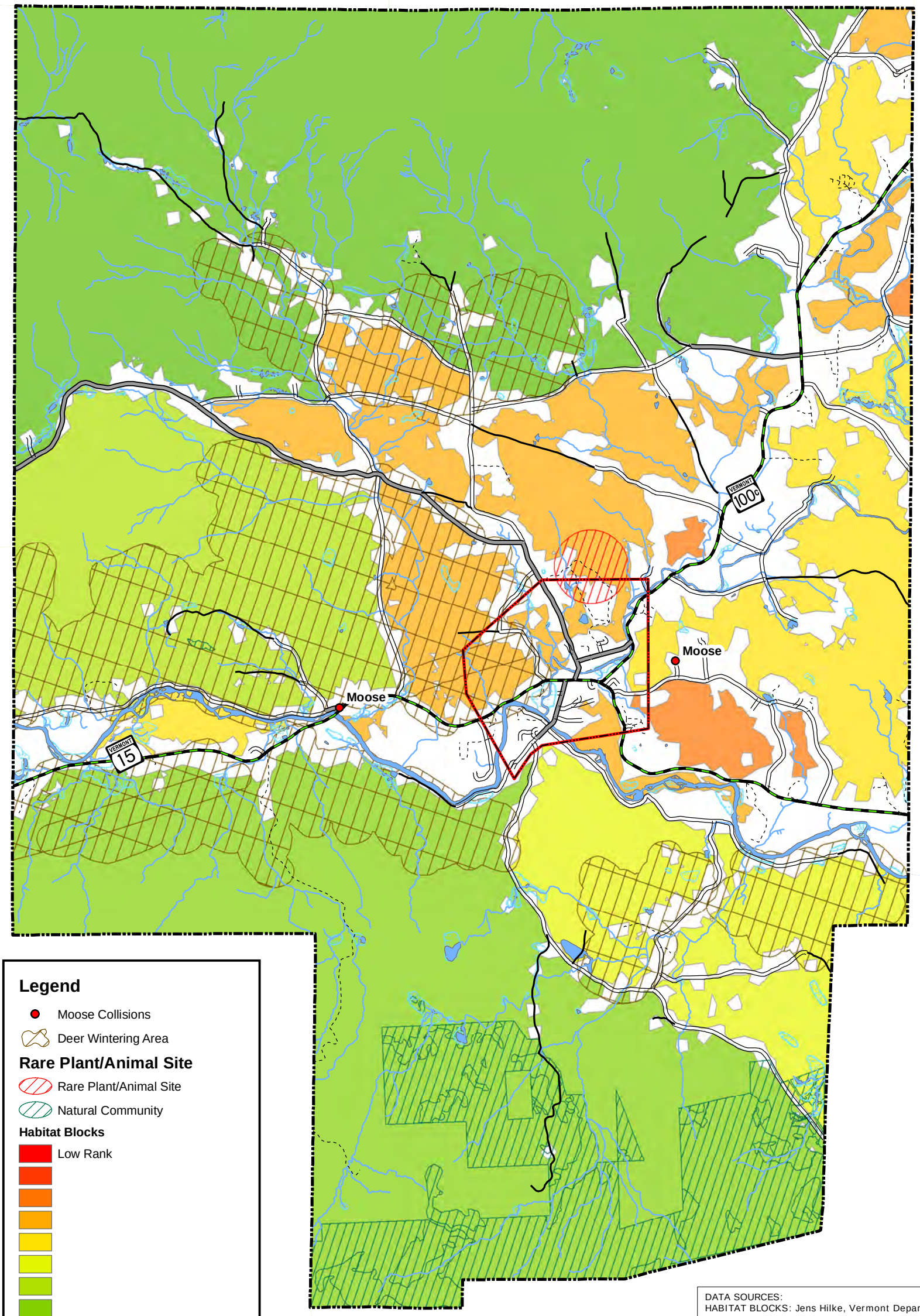
0 125 250 500 Feet

N



Johnson, Vermont
Town Plan
Significant Habitat Map



Legend

- Moose Collisions
- Deer Wintering Area

Rare Plant/Animal Site

- Rare Plant/Animal Site
- Natural Community

Habitat Blocks

- Low Rank
- High Rank
- Wetland
- Lake/Pond
- Town Boundary
- Village Boundary
- Streams

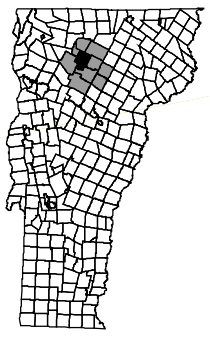
Roads

- State Highway
- State Forest Highway
- Class 2 Town Highway
- Class 3 Town Highway
- Class 4 Town Highway
- Public Road, Undetermined Class
- Unknown / Private Road
- Trail

N

0 0.5 1 2 Miles

DATA SOURCES:
HABITAT BLOCKS: Jens Hilke, Vermont Department of Fish and Wildlife; Eric Sorenson, Vermont Agency of Natural Resources; Jon Osborne, Vermont Land Trust. Quality ranking based on several weighted factors. For more information, see full report, available at http://www.vcgi.org/commres/vsdp/archive/hilke_osborne_hab_block_connect.pdf.
ROADKILL: VDFW, 2006.
WETLANDS: Vermont Significant Wetlands Inventory, VCGI, 2010.
RARE PLANT/ANIMAL SITES: Rare, Threatened and endangered Species & Significant Communities, 1:24000, Includes 200m buffer. Vermont Fish and Wildlife, 2006.
DEER WINTERING AREAS: 1:24000 and 1:25000, VANR, 2008.
POLITICAL BOUNDARIES: 1:24000 USGS Quadrangles, VCGI, 1991.
ROADS: 1:5000 E-911 Road Data, VCGI, 2015.
SURFACE WATER: On-screen digitized from 1:5000 digital orthophotos using USGS 7 1/2' quadrangles and 1:20000 color infrared aerial photography as additional source material, VCGI for VHD-USGS, 2001.



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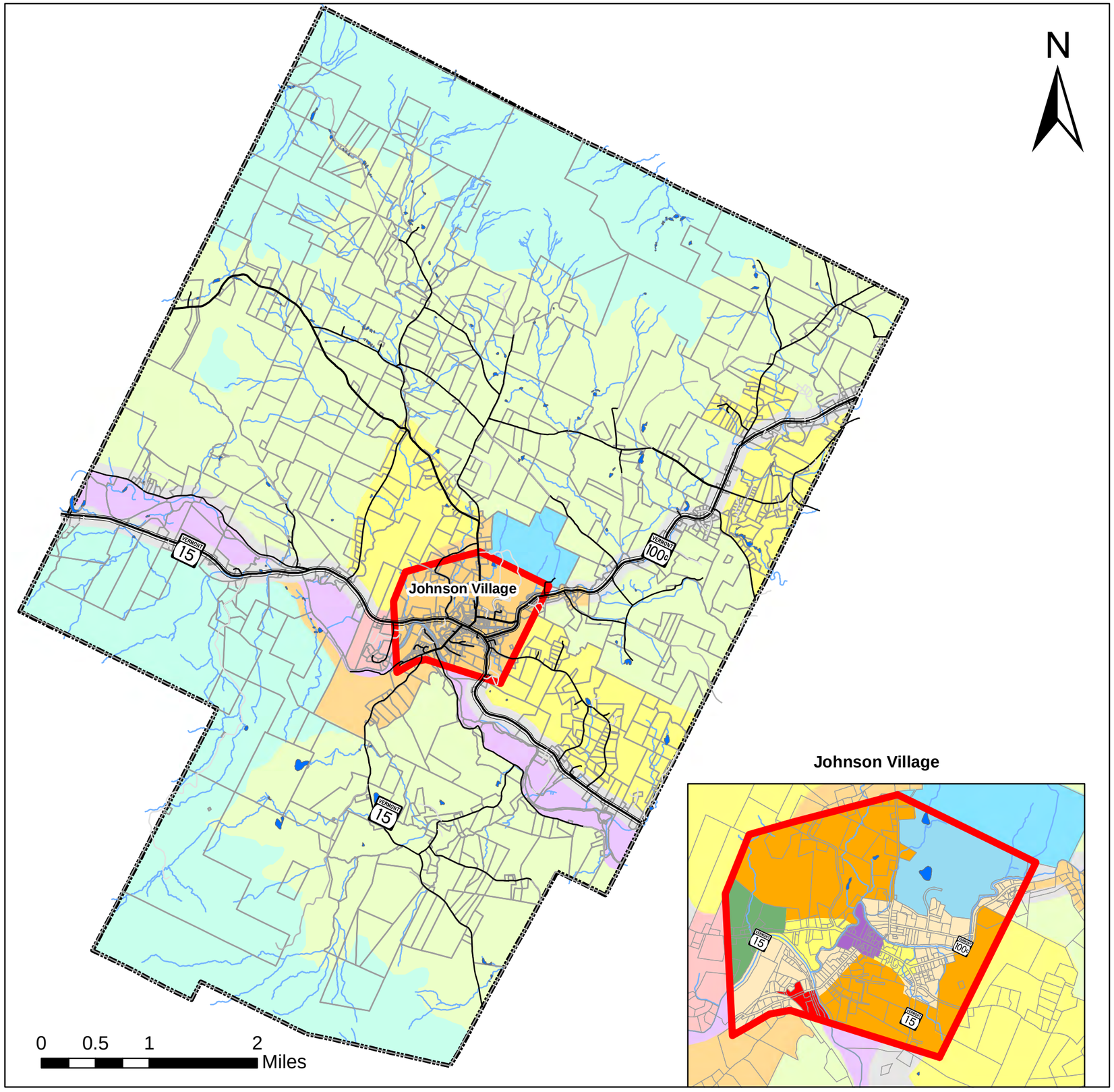
Johnson Town and Village Land Use Districts



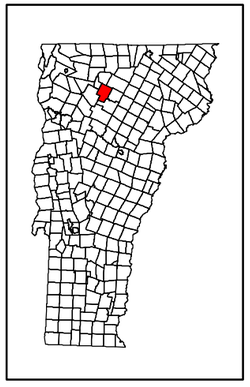
MAP LEGEND

Johnson Town Land Use Districts

- TOWN SEWER SERIVICE AREA DISTRICT
- VILLAGE
- HIGHWAY
- RESIDENTIAL
- RURAL RESIDENTIAL/AGRICULTURAL
- COLLEGE
- AGRICULTURAL
- FOREST

Johnson Village Land Use Districts

- MAIN ST MIXED USE WEST
- COLLEGE
- INDUSTRIAL
- MAIN STREET GENERAL
- MAIN STREET STOREFRONT
- LOWER VILLAGE
- UPPER VILLAGE
- Village Boundary
- Parcels
- Town Boundary
- Lakes
- Streams
- State Highway
- Class 2 Road
- Class 3 Road
- Class 4 Road
- Private Road



DATA SOURCES:
POLITICAL BOUNDARIES: 1:24000 USGS Quadrangles, VCGI, 1991.
ROADS: 1:5000 E-911 Road Data, 2014.
SURFACE WATER: On-screen digitized from 1:5000 digital orthophotos using USGS 7 1/2' quadrangles and 1:20000 color infrared aerial photography as additional source material, VCGI for VHD-USGS, 2001.
PARCELS: Town of Johnson, 2012.
LAND USE DISTRICTS: Town and Village of Johnson, 2010
RIVER CORRIDOR: ANR Natural Resource Atlas, 2015

Tranverse Mercator,
VT State Plane,
NAD 1983

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