
Town of Pownal Town Plan



Adopted April 25, 2019

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1.0 Introduction

The Vermont Planning and Development Act, codified in 24 V.S.A Chapter 117 establishes the process for developing and adopting town plans. A town plan is necessary for a town to adopt or amend zoning or subdivision regulations, adopt a capital budget and program, or use impact fees. The town plan provides the supporting basis for town bylaws. Act 250, codified in 10 V.S.A Chapter 151 provides for the Natural Resources Board to regulate certain categories of land use and development projects and that such projects meet ten criteria, one of which is conformance with a town plan. Finally, Section 248 or 30 V.S.A. Section 248 provides for the process of review and approval of gas and electric facilities by the Public Utilities Commission. Municipalities cannot directly regulate generation and transmission facilities. As of 2016, municipalities and regional planning commissions have the option of adopting enhanced energy plans and obtaining an affirmative determination of energy compliance that will allow the Public Service Board to give “substantial deference” to the local or regional plan in decisions on electric generation facilities.

The Vermont Legislature has granted the power to plan and regulate land use at the local level while retaining significant authority with respect to transportation, natural resources, and providing funding and tax incentives for public investments. The Bennington County Regional Commission provides assistance to the 17 towns and villages in the Commission’s service area in planning and other activities. BCRC also reviews plans to determine if they meet the legislative requirements and issue a “confirmation” if they do. This allows towns to then apply for municipal planning grants and various designations such as Village Center Designation. BCRC also reviews town plans to determine if they meet the requirements of an enhanced energy plan under Section 248, discussed above.

This Plan should act as a guide for our Select Board, Development Review Board, Zoning Administrator, Vermont’s Act 250, the Public Services Board and any citizen concerned with the direction of this town with regard to:

- Use and development of land
- Public services and facilities
- Safe and affordable housing
- Protecting our natural environment and abundant natural resources
- Prudent economic development to attract and retain generations to come
- Providing for deference by the Public Utilities Commission when it reviews proposed energy projects in Pownal

2.0 Our Vision for Pownal

Pownal is a rural town situated in one of the most scenic valleys in Vermont with a rich history. A wide diversity of people has called Pownal home, coming from all socio-economic groups, political alliances, religious backgrounds and professions. New and multi-generational

residents have co-existed here, and in the spirit of tolerance have worked together to protect and contribute to the social fabric of Pownal. Our community is created and held together by mutual respect for one another's individual life choices. All of us together, through personal relationships, create the culture and cohesiveness of our town.

Part of this rich history included industrial installations which offered ample employment to our citizens. This industrial history was an integral part of a thriving economic ecosystem, which was interdependent with tradesmen, restaurants, artists, small farms, small businesses, corner markets, community events, churches, social organizations, a growing elementary school, community dances and dinners and logging and earth product businesses. These long-standing traditions and facets of our community still make up the backbone and heartbeat of Pownal today. This town is still alive with positive relationships and a unique local culture which stands upon the foundation of this history.

The Town of Pownal wants to encourage active citizen input in all aspects of civic life. It is the purpose of the town plan to preserve the best of the town as it is today, with its traditions and history, and to prepare it for a more prosperous future. This plan should reflect the wishes and vision of our citizenry, tempered by and in compliance with, regional, state and/or federal requirements. To survive as a rural agrarian town with its many benefits, it is important to continue the process of sound planning. The people's voice provides direction. Citizen input is a critical component of effective community planning and the planning process needs to not only engage the public, but also develop a plan responsive to their unique visions. Our citizens, municipal boards and members, our neighboring municipalities, our regional partners and the State of Vermont could come together with the Planning Commission to form a vision for Pownal for years to come. This town plan provides background information on the current status of economic, natural, social and public resources within the town and a series of recommended actions to implement goals to foster those resources for the benefit of current and future members of the Pownal community through an open and transparent democratic process.

The Town of Pownal, as it exists today, is the result of a long past of human aspiration and struggle that included people from all socioeconomic backgrounds working together. Beginning in the early 1720's when Dutch settlers came to Pownal and built modest homes, and farmed the fertile lands along the Hoosic River, generations of hard working and hard playing people have called Pownal their home. From the original small homesteads and farms to the larger homes, and industries that followed, Pownal has weathered many storms, and times of expansion and contraction.

At no time has Pownal relied upon one large employer, or an economy built around one specific type of enterprise. Pownal has always been more than one thing. From its earliest beginnings, it was more than working farms. Pownal was forests for logging to provide wood for heat, and lumber for building. It was soils and minerals for mining, and a river for damming and creating power for grist mills and cotton mills. In the best of times, all enterprises worked

together to form a more prosperous town in which hard working people could provide for their families.

The town's most recent prosperous time was during the late 1950's through the 1970's when Pownal had several large enterprises as well as the many smaller businesses that sprang up and thrived alongside them. Pownal's factories, the Tannery in North Pownal, Warren Wire (later named General Cable), its large sawmill, Northeast Wood Products in Pownal village and the Green Mountain Park thoroughbred horse racing track provided the livelihoods of many Pownal families. At that time, Pownal also had several gasoline filling stations, dairy farmers who delivered their milk and eggs, auto repair shops, restaurants, bars, corner markets and specialty retailers, barber shops, salons, a bank branch, motels, boarding houses, cottages for seasonal workers. There were jobs in Pownal for skilled and unskilled laborers, loggers, cooks, farriers, baby sitters, waitresses, meat cutters, and tradesmen.

During the late 1970's to early 1980's Pownal's economy started on a downturn as a result of the race track failing because it no longer held a monopoly on regional legalized gambling. Coincidentally, the General Cable manufacturing facility closed in the late 1980's and the Tannery followed in the 1990's. When the horse racing enterprise ended, many of the local supporting services likewise experienced hard times. Farms sold less hay and feed for the animals, and restaurants, stores and motels realized a decrease in business. One of the last holdouts, the saw mill, closed in the late 2000's and the property was auctioned off in 2009.

There are many families who still live in Pownal today, who worked for and also are descended from the employees of these now defunct companies. Even though the companies are gone, the communities, way of life and culture they helped form still exist. The closing of these companies has also led to the growing need for local employment for a ready and willing workforce of all skill sets and abilities. Another lasting vestige of the absence of these once successful employers is a growing population of families who live in institutional multi-generational poverty. These families, our most vulnerable citizens, have a desperate need for financial opportunity.

Another challenge is the real estate tax burden that continues to grow as our population ages. Although population numbers have remained flat for the last 10 years, many of the younger generation find little opportunity here and leave the area. This is of such concern that in 2015 the General Assembly of the State of Vermont formed the Southern Vermont Economic Development Zone to address many of these trends. Pownal participates in this initiative and its approach to addressing these problems. Affordable costs foster economic opportunity and individual financial stability and solvency. Pownal will endeavor to find new and innovative ways to lower taxes to keep the costs of property ownership as low as possible.

Once a thriving farming community, with several industries, Pownal has now become primarily a "bedroom community" to adjacent cities and towns. Residents of Pownal today also come from a wide diversity of backgrounds. We have several working artists (woodcraft, pottery) and amateur artists (photographers and painters) who find Pownal's natural beauty a

constant source of inspiration. Many are self-employed, in the trades, farming, legal and medical professions, and small business owners. Many depend on the hospitality industry and tourism for part or most of their livelihood.

Many families with young and growing children call Pownal home. Pownal has a small and welcoming Elementary School which serves its children well, both academically and socially. The school also serves as a community center with fun programs for families such as movie nights and dances. On the other end of the spectrum, we have an active senior population that gather for social and civic events.

Those finding their livelihood here work in a modest cottage industry setting, including several home occupations such as gun shops, small auto repair and sales, and building contractors. Other businesses include retail stores, auto dealers, US Post Offices, a thriving waste management business, and a number of municipal jobs. Many newer residents of Pownal are taking advantage of improved broadband services and telecommute from home.

Sustainable, long-term economic development in Pownal will take advantage of regional assets such as cultural, educational, and employment opportunities in Bennington, Eastern New York, and Berkshire County, Massachusetts. Additional efforts should be made to enhance recreational opportunities and tourism; support and encourage resident-owned businesses and joining with statewide and regional marketing campaigns; promoting and supporting farming and farm-to-table enterprises; and creating a diverse and sustainable tax base that is also friendly and open to large employers and manufacturing.

We hope to create an economic environment that allows all citizens of all educational and socio-economic backgrounds and skill sets and abilities to be able to have the resources to live lives of self-determination and independence. The natural beauty of Pownal, the community, and the rural lifestyle that characterizes the Town are Pownal's greatest assets. The economic development strategies in this plan will emphasize these assets and create a diverse tax base. Going forward, Pownal will recognize that a healthy and diverse economic ecosystem is crucial, not only to economic growth, but to the sustainable preservation of our town character, our traditions and our lifestyles. Farms rely on employed citizens. Large employers rely on a local workforce. The workforce relies on local services and businesses. Trades people and small businesses of all kinds rely on a combination of visitors and an increased baseline standard of living as well. All action items in this plan will seek to support all aspects of our economy, with a strong eye towards creating the right environment to grow and expand local opportunity for all.

Natural resources should be protected so they continue to provide clean air and water, wildlife habitat, forestry, hunting, recreational uses and scenic values. Areas subject to flooding and river and stream erosion should be protected to provide for the public health, safety and welfare. Sources of surface and groundwater should be protected to maintain safe drinking water supplies. Agricultural lands and soils should be conserved to provide for current and future farming opportunities. Public facilities such as water and wastewater systems, roads and

other infrastructure should be maintained and remain adequate to provide safe and efficient resources for residents and businesses.

Pownal leads the county in solar projects, and programs for businesses, institutions and residents for energy at the lowest cost possible should be encouraged. Rehabilitation of existing structures and meeting state energy standards in construction can save both energy and expenses for energy paid by residents and businesses.

Institutions that provide important support systems such as fire departments, the library and social support organizations should continue to be supported to provide needed services to the Pownal population. Recreational and educational facilities and services should be supported to provide resources for both residents and visitors to encourage economic development and social cohesion.

3.0 Population, Housing, and Economic Development

The data below come from several sources including U.S. Census¹ data from 1980, 1990, 2000 and 2010, the Vermont Housing Finance Agency,² and American FactFinder, which provides estimates between decades. In some cases, there were minor inconsistencies between American FactFinder estimates and decadal census data. In this plan, decadal census data was used to show trends or to compare Pownal with Bennington County and the State of Vermont while estimates were used where showing data closer to the period this plan was prepared seemed useful.

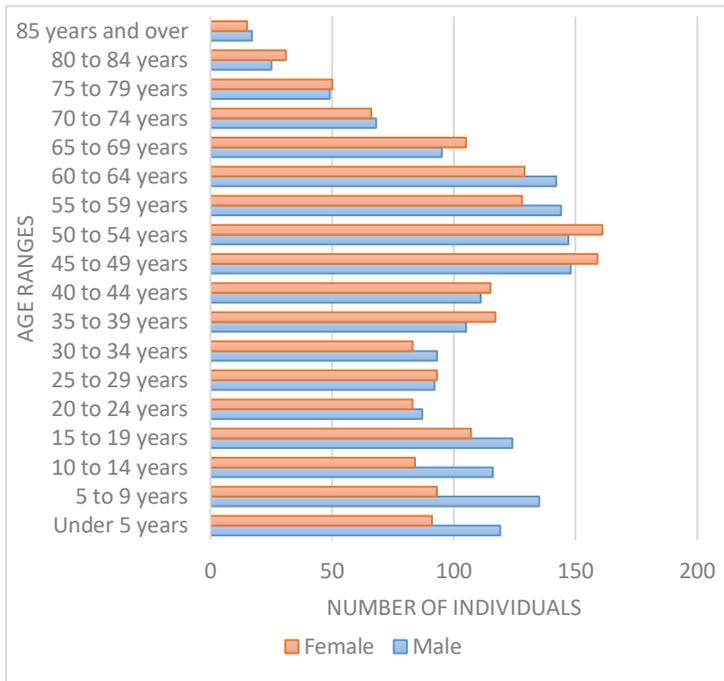
As of the 2010 census, Pownal had a total population of 3,527 in 1,429 households making Pownal the fourth most populous town in the Bennington County region, behind the Towns of Bennington, Manchester, and Shaftsbury (BCRC, 2015). Pownal is representative of much of Vermont with an aging, mostly white-identified (95.7%) population (United States Census Bureau, 2015a). The current median age in the Town is 43.9 years old, up from 43.3 at the 2010 Census and 38.5 at the 2000 Census.

Figure 1 shows the age distribution from the 2010 census. This age distribution is similar to both the county and the state. Pownal will need to accommodate aging residents in the coming years since almost 40% of the local population is now over 50 years old, while continuing to provide educational and other services for its youth population.

¹ The census and census data are acquired, maintained and analyzed by the U.S. Census Bureau within the U.S. Department of Labor. The Bureau then makes that data available to the public (see <https://www.census.gov>).

² The Vermont Housing Finance Agency (VHFA), located in Burlington, VT, is a nonprofit agency that finances and promotes affordable housing opportunities for low and moderate income Vermonters (see www.vhfa.org)

3.1 Population



From the first United States census in 1790 to 1960, the population of Pownal was relatively stable, fluctuating between approximately 1,400 and 2,000 people. Pownal experienced rapid growth from 1960 to 1990 during which the population more than doubled (134%). During that same period, the population of Bennington County increased by 48% while the population of Vermont increased just over 60%. Pownal’s population declined slightly after 2000, and both the county and state populations have grown slightly compared to the previous periods (Vermont Housing Finance Agency, 2016) (Figure 2).

Figure 1. Number of individuals in age classes in Pownal in 2010 (U.S. Census Bureau, 2013)

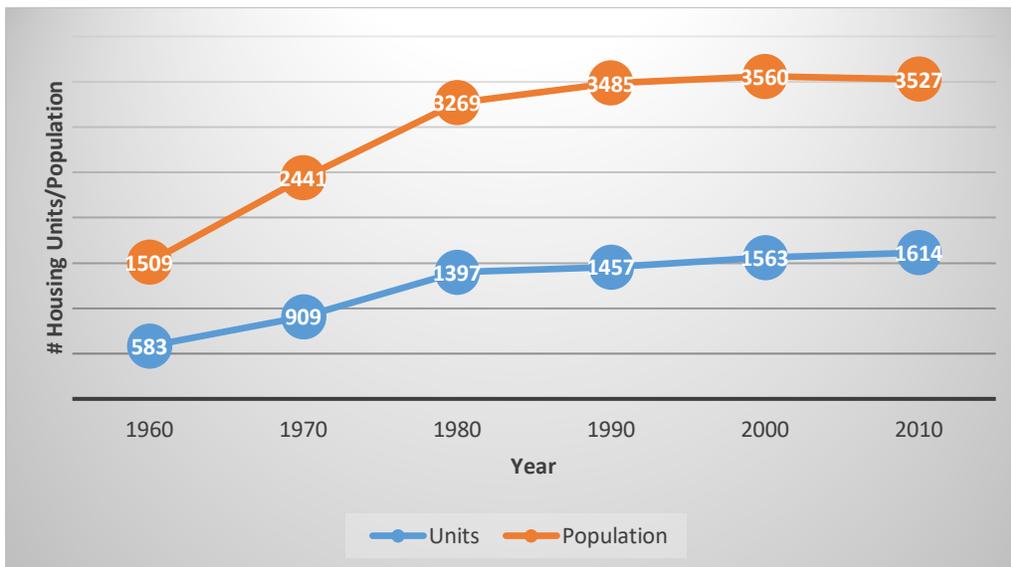


Figure 2 Changes in population and housing units from 1960 to 2010. (Vermont Housing Finance Agency, 2016)

Projections prepared by the Vermont Agency of Commerce and Community³ Development indicate that the population of Pownal may either increase slightly or decrease, depending on which “scenario” one uses. Table 1 below shows the two potential trends for Pownal, Bennington County and the Vermont, with the town population either remaining stable or declining slightly.

Table 1. Population projections for Pownal, VT to 2030 (Jones, K. and Schwarz, L., 2013)			
Projection A	Pownal	Bennington County	Vermont
2010 Census	3,527	37,125	625,741
2020 Projection	+0.3% (=3,535)	+1.5% (=37,695)	+4.4% (=653,575)
2030 Projection	-1.2% (=3,486)	+0.9% (=37,470)	+7.1% (=670,073)
Projection B	Pownal	Bennington County	Vermont
2010 Census	3,527	37,125	625,741
2020 Projection	-2.9% (=3,423)	-1.8% (36,470)	+0.5% (628,688)
2030 Projection	-7.6% (=3,258)	-5.6% (35,034)	-0.8% (620,480)

Scenario A assumes a migration rate similar to what occurred between 1990 and 2000 while Scenario B assumes a rate similar to what occurred between 2000 and 2010, when Vermont experienced higher in migration. In both scenarios, the population between 25 and 39 and over 55 increases while that of other age classes decreases. It is likely Pownal will continue to experience a population of increasing age.

Table 2 below shows educational attainment levels for Pownal, Vermont and the nation.

Table 2. Educational attainment for Pownal, Vermont and the United States. (United States Census Bureau, 2015b) (United States Census Bureau, 2015c) (United States Census Bureau, 2015d)			
Attainment Level	Pownal	Vermont	United States
Less than high school	14.1%	8.2%	13.3%
High school graduate	39.4%	30.1%	27.8%
Some college	21.3%	17.4%	21.1%
Associates degree	7.2%	8.4%	8.1%
Bachelor’s degree	11.5%	21.7%	18.5%
Graduate or professional degree	6.4%	14.3%	11.2%

While the high school graduation rate is consistent with the national rate (87%), the

³ The Vermont Agency of Commerce and Community Development or ACCD oversees programs in economic development, housing and community development to enhance Vermont’s business environment, tourism and to strengthen Vermont communities (see acd.vermont.gov).

proportion of college educated residents is much lower than both state and national rates, with just 18% of residents possessing a bachelor's degree or higher, compared to 36% rate for Vermont and 30% nationally. Information on attendance at vocational and trade schools is not available.

Table 3 shows income and poverty status estimates data taken from the Vermont Housing Finance Agency. In 2010, the median household income, at \$57,762, was higher than both county and statewide values, and the overall poverty rate is lower, but poverty rates for children and those over 65 are elevated.

	Pownal	Bennington County	Vermont
Median household income	\$57,762	\$50,221	\$54,267
Overall poverty rate	9.4%	11.5%	15.5%
Child poverty rate (under 18 years)	24.0%	15.1%	21.7%
People over 65 years old	21.5%	31.7%	9.4%

3.2 Economic Development

3.2.1 Overview

Employment data fluctuates more than other demographic data. Table 4 below summarizes the number of occupied civilians in Pownal by the major occupation groups according to the 2011-2015 American Survey 5-Year Estimates. Sales and production related occupations employ over 50% of workers.

Occupation Area	Number	Percent
Management, science, business, arts (includes management, education, legal and healthcare)	398	21%
Service (includes healthcare support, protective services, food preparation and maintenance)	353	19%
Sales	522	28%
Natural resources (includes farming, forestry and extraction)	119	6%
Production (includes production and transportation)	472	25%
Total	1864	

Many residents of Pownal work in neighboring towns such as Bennington, Vermont or Williamstown, Massachusetts, or commute to larger employment hubs such as the Albany, New York region. Over 94% drove to work and over 86% drove alone. Less than 5% work at home. Almost 30% of the workforce works out of state, and mean travel time to work is 22.7 minutes (United States Census Bureau, 2015g).

Table 5 shows the number of businesses and employees by type based on census data from 2012. Data from Infogroup (Infogroup, 2016), indicates that government, schools, nurses and nurse registries and fire departments are major employers, though the latter two are volunteer departments.

Type of Establishment	Number	Number of Employees
Retail Trade	7	46
Transportation and warehousing	1	a ⁴
Professional, scientific, technical	3	a
Administrative, support, waste management, remediation	5	13
Health care and social assistance	3	18
Accommodation and food service	1	a
Other service except public administration	1	a

The Planning Commission has determined that Pownal is home to seven establishments that employ ten or more employees, in addition to several smaller enterprises. The largest single employer is the Pownal Elementary School. Other businesses with at least 10 employees each include the following:

- Southwestern Vermont Medical Services Pownal Campus opened in 2015.
- TAM Waste Management
- Stewarts
- Oak Hill Children’s Center
- Gullivan Corporation
- Inner Space Cleaning

Small, family-run businesses are often run out of private homes or use a business site along the two main thoroughfares of Route 7 or Route 346. Local businesses like Tam Waste Management have shown that Pownal can be an excellent place to open or expand a business. There are a number of individual and family run farms providing high quality food and some

⁴ “a” indicates 0-19 employees

local opportunity for employment. Despite these local opportunities, most workers residing in Pownal have to travel for employment to Bennington, New York or Western Massachusetts.

3.2.2 Pownal Racetrack

The former Green Mountain Racetrack site is a 144-acre property in a prominent location along the Route 7 corridor with a long section of river frontage along the Hoosic River, and adjacent to the rail line. Redevelopment of the racetrack site is important for the economic vitality of both Pownal and the surrounding region. Currently, EOS Ventures has installed a 10-acre solar photovoltaic park at the site, which might be expanded.

In 2012, Williams College Center for Environmental Studies students completed a study of the racetrack site that discussed potential development and collected community input (Davis et al., 2012). According to this study, Pownal residents are most concerned with job creation, support for the local economy, and environmental friendliness in any development of the racetrack. A large portion of the site is within the flood hazard zone. The study evaluates potential uses such as agricultural, entertainment, recreation, housing, and manufacturing and rates them for job creation and quality, compatibility with state law and zoning, and community support. The study recommended a combination of light manufacturing, recreational use and commercial retail development in the section of the racetrack site nearest Route 7. Other potential uses include a technology park with multiple businesses, a site to incubate new businesses, other commercial/industrial uses, music events, car shows, and other outdoor events. The site also provides access to the Hoosic River for walking, fishing and observing nature. The Town will need to work with the State of Vermont and the railroad to assure safe access for these kinds of uses.

3.2.3 Recreational Activities and Tourism

Pownal has often been referred to as the *Southwestern Gateway to Vermont* to highlight the beauty of the Town and acknowledge the fact that many tourists to the state pass through Pownal every year. There is a sense that an opportunity to keep these tourists in Pownal is currently underutilized, and that increasing public activities and improving access to existing recreational resources could address this loss.

Outdoor sporting is a large economic sector in this country and in Vermont. Pownal has many natural features that are desirable for cyclist, hikers, bird watchers, kayakers, hunters, and fisherman, and snowmobile, all-terrain vehicle and off-road motorcycle users. The Town has extensive forest land with a trail network on the former Pownal Tannery lands between North Pownal and the New York State line (on the slopes of the Taconic Mountain Range), as well as other public land and trail access in the Green Mountain National Forest. Many of the back roads provide pastoral views and excellent cycling opportunities. The Hoosic River offers paddling and rafting adventures as well as fishing. These are all attributes that could be improved and better publicized.

Though the Town of Pownal has supported individual events such as Moonlight Race/Walk and a cyclist race when approached, there is little outreach to encourage such events. The Town should make every effort to promote and encourage these types of activities and to work with regional groups such as the Hoosic River Watershed Association as well as local groups such as the Elementary School, and the Fire and Rescue groups in the area. As more people participate in these activities, they bring more business to local stores and can be a catalyst for new businesses and momentum to support these activities.

Heritage tourism, shown to be an effective economic revitalization strategy, could also be a reason that visitors come to Pownal. According to the National Trust for Historic Preservation, studies have shown that these heritage tourists stay longer and spend more money than comparable travelers. With Pownal's rich history and an active Pownal Historical Society, Pownal will enhance its standing as an important heritage destination. (Note the SWVHC Pownal Campus is including some historical information in their art work.)

3.2.4 Farming

Geologic history has gifted Pownal with rich soil, an abundance of water, and a valley that supports a number of small and moderate size family farms. Pownal has a strong agricultural community that provides high quality food to surrounding communities and employment to local citizens. In addition, these farmers do a great service by maintaining the open pastures that are an integral part of the scenic beauty residents enjoy. As current farmers age, however, there is a possibility that some of this land will not be farmed in the future.

The Town wishes to do more to promote and assist existing farmers and to work with groups like the Vermont Land Trust, which links prospective farmers with available farmland through its Farmland Access Program. There is a growing awareness of the need for local, well managed farms and a growing market for farm-to-table products and initiatives (Vermont Sustainable Jobs Fund, 2018). Opportunities exist for local farms to compete for business in our local school system to provide locally grown produce, meats, and other food products as much as possible in providing healthy meals to students. For example, the Abbey Group, which provides food for Pownal Elementary School, already seeks local food sources (O'Neil, 2018.). Southwestern Vermont Medical Center operates a Health Care Share program as a community supported agriculture or CSA program with the Vermont Youth Conservation Corps (Vermont Youth Conservation Corps, 2018). See Section 4.0 Natural Resources.

3.2.5 Village Center Designations and Where is the Village Center? (See also Land Use Section 5.2)

Pownal currently has three distinct village zones: Pownal, North Pownal and Pownal Center (Map 2). In 2018, the Town applied for and received designation of these three as Designated Village Centers by the Agency of Commerce and Community Development. The Agency's State Designation Program makes villages like Pownal, Pownal Center, and North Pownal eligible for a range of financial incentives and grants that support dense community

development in those areas. Channeling development into these areas is critical to creating compact centers, increasing economic development activity and reducing dependence on fossil fuels. The town already provides wastewater treatment for these areas, and the fire district provides water to Pownal Village.

3.3 Economic Development Goals, Objectives, and Actions

Statewide Goal #1 (24 V.S.A § 4302): To plan development so as to maintain the historic settlement pattern of compact village and urban centers separated by rural countryside.

- Intensive residential development should be encouraged primarily in areas related to community centers, and strip development along highways should be discouraged.
- Economic growth should be encouraged in locally designated growth areas, employed to revitalize existing village and urban centers, or both, and should be encouraged in growth centers designated under chapter 76A of this title.
- Public investments, including the construction or expansion of infrastructure, should reinforce the general character and planned growth patterns of the area.
- Development should be undertaken in accordance with smart growth principles as defined in subdivision 2791(13) of this title.

Statewide Goal #2: *To provide a strong and diverse economy that provides satisfying and rewarding job opportunities and that maintains high environmental standards, and to expand economic opportunities in areas with high unemployment or low per capita incomes.*

Pownal Economic Development Goal #1: Assure that the town government has the capabilities to implement economic development and other actions listed in this plan.

Objective: Pursue municipal policies and practices that promote the financial security and prosperity of the Town.

Actions:

1. The Select Board could create an Economic Development Committee to develop a clear vision and strategy with regard to economic development within the town.
2. Conduct needs assessments, capacity studies, SWOT (Strengths, Weaknesses, Opportunities and Threats) analyses and similar studies to help develop a realistic plan to attract new businesses and support existing businesses.
3. Establish a capital improvements plan and identify capital improvements such as sidewalks, bike paths, streetlights, etc. that will make Pownal more attractive to not only residents but also potential investors and developers looking to relocate in Pownal.

4. Maintain Village Center Designations⁵ through the Vermont Agency of Housing and Community Development to gain access to resources (tax credits and grants), training, and technical services for Pownal Village, North Pownal, and Pownal Center.
5. Reevaluate and re-delineate the boundaries of Pownal Village to account for future development potential and expansion.
6. Employ a full-time town administrator whose job would include but not be limited to: performing public relations duties in dealing with complaints, criticisms and suggestions of citizens, businesses, industries, developers, and builders; maintaining a Town website; planning for short-term and long-term financing for capital projects; applying for and administering federal, state and private grant funds; directing community and economic development efforts.

Pownal Economic Development Goal #2: Provide, strengthen, and enhance a sustainable economy that attracts investment, increases the tax base, creates productive and satisfying employment opportunities, generates public revenues, and continually seeks economic growth opportunities that improve the quality of life for our residents while preserving the natural beauty and environmental quality of Pownal.

Objective: Ensure that all new development is sensitive to the need to protect the public health and safety and does not adversely diminish scenic beauty and natural resources of the town.

Actions:

1. Promote and support farming and farm-to-table enterprises.
2. Promote and support large employer opportunities in Pownal to address the needs of our residents while at the same time protecting the environment.
3. Coordinate workshops in partnership with the Vermont Land Trust's Farmland Access Program to educate existing and prospective farmers about financial options to support the preservation of Pownal's farmlands.

Objective: Maintain a diverse economy consisting of a variety of types and sizes of businesses.

Actions:

1. Review and revise bylaws to ensure a mix of commercial and industrial uses, particularly in the downtown and village centers.
2. Review and revise bylaws to support the development and expansion of home-based businesses and cottage industries.
3. Review and revise the bylaws to assure that large industrial or commercial uses can exist within the town.

⁵ Village Center Designation is a program that provides tax credits and priority for state grants within areas of a town designated by ACCD (see <http://accd.vermont.gov/community-development/designation-programs/village-centers>).

Objective: Maintain and enhance the appearance, function, and commercial viability of Pownal by improving aesthetics.

Actions:

1. Develop design guidelines for commercial and industrial development that include but are not limited to standards for parking, sidewalks, streetscape, pedestrian amenities, streets, signs, buildings, siting, etc., while ensuring the standards do not create an undue burden on employers.
2. Permit low density residential development to protect the western views along the Route 7 corridor and along Burrington Road, a popular scenic and recreational route that runs parallel to it.

Objective: Support existing businesses and encourage new businesses, investors, and developers to locate, relocate, develop, or expand within Pownal so as to encourage development that will expand the tax base and provide a net benefit to the Town.

Actions:

1. Assess the effectiveness of a municipal revolving loan fund for business startups and expansions and/or a business tax stabilization program and policy.
2. Encourage businesses and property owners to apply for tax credits and other incentives provided through Village Center Designation.
3. Aggressively pursue and preserve businesses that are flexible in their ability to locate their enterprises, and who appreciate quality of life as a viable part of the success of their business and for the wellbeing of their employees, as well as the residents of Pownal.
4. Encourage development that will expand the tax base and provide a net benefit to the town.
5. Identify emerging and pro-actively clean industries to specifically attract to Pownal
6. Provide resources and programs to support Pownal's small businesses.
7. Advocate the diversity of skills and services of Pownal's residents.

Pownal Economic Development Goal #3: Enhance Pownal's appeal as a seasonal and tourist destination as well as a profitable destination for businesses to locate and for prospective residents to live.

Objective: Increase the region's visibility and its visitor and tourism economic activities through partnerships with allied groups in the region and through local activities and initiatives that highlight Pownal's unique traits.

Actions:

1. Identify representatives from Pownal to participate fully in regional and statewide marketing and economic development programs such as the *Southern Vermont Economic Development Zone*, the *Comprehensive Economic Development Zone Strategy* (CEDS), and the *Southern Vermont Sustainable Recruitment and Marketing Project* with actors including the Bennington County Regional Commission (BCRC),⁶ the *Southern Vermont Economy Project*, and the *Southeastern Vermont Economic Development Strategies* (SeVEDS).
2. Develop an inventory of marketable commercial and/or industrial sites.
3. Create informational materials for the town website describing and mapping Pownal's historic, environmental, scenic, recreational, and cultural assets.
4. Through available economic development programs promote Pownal as an appealing place for retirees, second-home buyers, and new residents with its natural beauty, proximity to high quality cultural venues and ski areas, and state of the art medical facilities.
5. Assess the viability of developing an informational kiosk to provide tourist information along Route 7.
6. Assess the viability of a proposal to create innovative promotional materials, including development and regular updating of a town website, to entice new businesses and support existing businesses, as well as to attract new residents.
7. Work with Pownal Historical Society to promote Pownal as a heritage tourism destination. Develop advertising materials geared toward tourism in Pownal and disseminate to local, regional and state outlets and websites e.g. vermontvacation.com.
8. Establish an approach to strengthening Pownal's image and role as a regional destination.
9. Promote Pownal as the southern gateway to Vermont.
10. Support the use of rail for both freight and passenger service.

Pownal Economic Development Goal #4: Use the extensive natural, scenic and recreational resources to provide recreational opportunities for both Pownal residents and visitors.

Objective: Encourage, support, and promote recreational events and opportunities

Actions:

1. Use events (e.g. Moonlight Race/Walk) in Pownal to bring people to the area.

⁶ The Bennington County Regional Commission (BCRC) provides assistance to towns within the county, including Pownal, and works with state and federal projects on natural resource, community development, emergency management and other programs (see www.rpc.bennington.vt.us).

2. Improve and enhance Pownal’s recreational opportunities e.g. bike paths, green spaces, boat launches, picnic benches, and other public amenities.

Pownal Economic Development Goal #5: Support art and cultural activities including both local artists and connections with regional art and cultural institutions.

Objective: Support the arts and culture as a distinctive component of the local and regional economy and promote public appreciation and support for the contribution that arts and culture make to Pownal’s economic vitality and quality of life (see Section 2.0).

Actions:

1. Collect information regarding the cultural community’s role in the economic vitality of Pownal stay abreast of opportunities as they develop in our region.
2. Support the creation of a comprehensive information-sharing network of artists, art organizations, and art resources in the Pownal area.
3. Work with the Bennington Area Arts Council and others on a county-wide cultural plan to promote arts and culture at the regional level.

3.4 Housing

3.4.1 Overview

An adequate supply of satisfactory housing is fundamental to the health and well-being of families, contributes to a stable work force, supports a vibrant economy, and promotes a clean environment. Secure, affordable housing also allows families to establish stable, long-term connections and encourages community involvement, and is a direct function of economic opportunity.

Planning for housing should meet two community objectives: 1) to provide safe and affordable housing for present and future residents, and 2) to assure appropriate density and distribution of housing throughout the town. Growth in housing affects the Town’s capacity to provide facilities and services to its residents and influences the character of the area. Housing built without adequate planning for schools, roads, and other public services can overburden the ability of the taxpayers to pay for these services, and also can lower adjacent property values and negatively impact the rural character of the Town.

Total Occupied Units	1,573
Single Family Homes	1,232 (78%)
Multi-Unit Homes	21
Manufactured Homes	320 (20%)

Single-family homes and manufactured homes constitute almost all of Pownal’s existing housing stock (Table 6). In 2010, 81.5% of housing units were owner-occupied, and 180 units were vacant (2011-2015 ACS 5-Year

Estimates). Median rent in the town is \$905, which is higher than countywide and statewide

values, but lower than the national median of \$928. The median home values of \$174,400 is lower than statewide and national assessments but higher than homes in the neighboring town of Bennington, Vermont. Table 7 provides data on the number of those owning vs. renting homes and household numbers and sizes for Pownal, Bennington County and Vermont.

Table 7. Ownership, household and family size for Pownal, Bennington County and Vermont in 2010. (Vermont Housing Finance Agency, 2016)			
	Pownal	Bennington County	Vermont
Owning home	1,165	11,017	181,407
Renting home	264	4,453	75,035
Total households	1,429	15,470	256,442
Number of families	990	9,767	160,360
Average household size	2.47	2.30	2.34
Average family size	2.89	2.83	2.85

Pownal's existing infrastructure and terrain limit suitable potential locations for new housing. Flood zones flank the Hoosic River, which runs through the two villages of Pownal and North Pownal, preventing the prudent development of adjacent lands, though there remain areas outside of the flood zones suitable for development. Surrounding this central valley, slopes increase quickly, outside of the villages, into the Green Mountains and Taconic Range, making the development of roads and housing extremely difficult.

3.4.2 Housing Trends

During and right after the 1960's, Pownal experienced significant growth in the number of houses including manufactured homes simultaneously with the development of the Green Mountain Race Track, which added considerably to the growth experienced by the Town during that decade. As with population, this trend stabilized between 1980 and 2000 (Figure 1).

Historically, much of Pownal's population growth and development has been absorbed outside of the village centers and in the rural residential areas. In the early 2000s, the Town of Pownal completed a project to provide sewer coverage to its three villages, Pownal Center, North Pownal and Pownal, to encourage infill development in these areas. Even with this sewage treatment system serving the three villages, there is still continued expansion of housing outside of the villages. The Town needs to encourage development within these villages, and it is important that future development outside of the villages occurs on sites capable of maintaining permanently functioning on-site sewage and water facilities.

3.4.3 Housing Safety

Significant portions of the existing housing stock in Pownal is older construction, with 14.6% of housing units having been built in 1939 or earlier. Aging housing units can fall into poor condition and often have issues associated with out-of-date systems, inadequate water or sanitation service, thermal inefficiencies, and various health hazards linked with dated building materials. For example, a total of 60.2% of housing units in Pownal were built in 1979 or earlier

(United States Census Bureau, 2015e). Depending on their condition, these older houses may contain hazards such as lead-based paint or asbestos. (United States Census Bureau, 2015h). The Environmental Protection Agency (EPA)⁷ requires that buyers and renters of housing built before 1978 be informed on potential lead hazards prior to purchase or renting (U.S. Environmental Protection Agency, 2016). The challenge presented by aging houses in poor general condition is exacerbated by the fact that the owners or renters occupying these units may lack the financial means or physical ability to repair them. Eventually, such units might become public safety hazards.

3.4.4 Affordable Housing

The U.S. Department of Housing and Urban Development⁸ defines *affordable housing* as housing that costs 30% or less of total household income. As shown in Table 8 below, a significant number of rental occupants pay more than that which potentially places them under financial stress to meet other needs for healthcare, food, clothing, and other expenses. Many other factors contribute to the affordability of a household's living situation, such as new construction, rehabilitation costs, utility costs, finance rates, property taxes, transportation costs, and childcare.

Housing metric	Pownal	Bennington	Vermont
Owner-occupied units at above 30% of household income	28.3%	34.7%	32%
Rental units at or above 30% of household income	55.7%	52.1%	52.5%
Median monthly owner costs (2009-2013)	\$1,096.00	\$1,155.00	\$1,208.00
Median gross rent (2009-2013)	\$884.00	\$848.00	\$875.00

A lack of jobs and affordable housing close to where one works stifles economic growth, increases traffic problems, and lowers quality of life. Improving access to jobs and to affordable

⁷ The U.S. Environmental Protection Agency is a federal agency created to protect the environment and human health by enforcing regulations based on federal legislation (see <https://www.epa.gov>).

⁸ The U.S. Department of Housing and Urban Development or HUD administers numerous federal programs for affordable housing and community development (see <https://www.hud.gov/>)

housing in Pownal would free up resources for families to provide for basic needs such as food and medical care and improve the lives of its residents.

3.4.5 Housing for the Elderly and those with Special Needs

Table 9 below summarizes data on special needs population focusing on those with disabilities and those over 65. As the population ages, there will be greater needs to serve these populations. Economic hardships challenge these groups more than others.

Table 9. Summary of potential special needs populations (Vermont Housing Finance Agency, 2016)			
Housing metric	Pownal	Bennington County	Vermont
Percent of owner-occupied units with householder 65 years or older	26.7%	31.2%	25.6%
Percent of rental units with householder 65 years or older	11%	21.7%	17.1%
Percent of population with a disability	14%	16%	13%
Percent of population over 65	13%	18.5%	14.8%
Percent of population over 65 with disability	36%	30%	34%

Individuals with special care needs may prefer to live in a community setting. While some people may live with parents or other family members, there is a need in Pownal for alternative housing options for adults with special needs. Social services are available in Southern Bennington County, but special living situations for those with serious conditions do not exist in Pownal.

Subsidized housing, group homes, assisted living facilities, residential care facilities and other similar facilities are needed for special needs persons and could help certain Pownal residents. Pownal currently has no skilled nursing facilities (i.e. nursing homes) or senior housing available and many of the elderly continue to live independently or require a visiting nurse periodically.

3.5 Housing Goals, Objectives, and Actions

Statewide Goal #11 (24 V.S.A § 4302): *To ensure the availability of safe and affordable housing for all Vermonters.*

- *Housing should be encouraged to meet the needs of a diversity of social and income groups in each Vermont community, particularly for those citizens of low and moderate income.*
- *New and rehabilitated housing should be safe, sanitary, located conveniently to employment and commercial centers, and coordinated with the provision of necessary public facilities and transportation.*

- *Sites for multi-family and manufactured housing should be readily available in locations similar to those generally used for single-family conventional dwellings.*
- *Accessory apartments within or attached to single family residences which provide affordable housing in close proximity to cost-effective care and supervision for relatives or disabled or elderly persons should be allowed.*

Pownal Housing Goal 1: Ensure the availability of safe, affordable, livable, long-term housing for all Pownal residents that satisfies the diverse needs of the community, manages growth, minimizes energy consumption and environmental impacts, and is compatible with adjacent and nearby uses.

Pownal Housing Goal 2: Plan new housing development with due regard to traditional settlement patterns, natural resources, and current or planned public and private services such as roads, utilities and other infrastructure. Development shall be compatible with adjacent and nearby uses, with due regard given to the purpose and goals of the district within which it is proposed. This includes compatibility with historic context and existing architecture.

3.5.1 Safety Goals, Objectives, and Actions

Goal: Rehabilitate and upgrade existing housing with regards to proper ventilation and insulation, accessibility, adequate water and sanitation, security from health hazards, and efficient heating systems and appliances.

Objective: Increase 1) residents' participation in housing rehabilitation programs as well as the activities of public, private, and non-profit entities that support housing upgrades, and 2) the percentage of housing units that are compliant with minimum health and safety standards.

Actions:

1. Make information on programs and resources supporting housing upgrades available to all residents, including low and moderate-income families, the elderly and the handicapped.
2. Enforce the Vermont Department of Health⁹ minimum health and safety standards as they apply to residential rental units.
3. Consider the adoption of local building codes and code enforcement to ensure the safety of housing.
4. Develop an inventory of substandard rental housing, perhaps through a local housing survey funded through a state municipal or community development planning grant and seek opportunities (financial or otherwise) to assist owners in improvement (i.e. rehabilitation, upgrade, replacement, or even removal).

⁹ The Vermont Department of Health is the lead agency in Vermont for public health policy and advocacy (see www.healthvermont.gov).

5. Identify and support unique housing development opportunities, such as the adaptive reuse of historic buildings, which potentially could be funded through *Community Development Block* grants.¹⁰

Goal: Improve the safety and health conditions of homes within the special flood hazard area (see Section 4.6.1).

Objective: Inform home owners of sources of assistance for upgrading their homes to meet local, state and federal standards for health and safety.

Actions:

1. Meet with home owners to develop strategies to help flood proof structures in the special flood hazard area.
2. Seek state and federal funding in the event of a natural disaster for the acquisition of distressed homes and the relocation of residents to safe housing in Pownal.

3.5.2 Affordability Goals, Objectives, and Actions

Goal: Accommodate a range of housing options, including owner-occupied, rental, affordable, and manufactured units to meet the needs of all Pownal residents, and develop affordable housing within the village centers where infrastructure, facilities, employment opportunities and public spaces are planned or already exist, rather than in outlying areas.

Objective: Pursue policies that result in the availability of single-family homes and multi-family dwellings at a price that would serve differing segments of the population.

Actions:

1. Review and update the Bylaws to reconsider minimum lot sizes and maximum densities in all zoning districts (e.g. increased density and/or reduced lot size requirements for multi-family dwellings in higher density (e.g., village) zoning districts).
2. Complete a housing needs assessment to identify affordable housing needs and strategies to meet those needs (Watson and Black-Plumeau, 2016).
3. Establish partnerships with non-profit housing agencies and other groups such as *Shires Housing*,¹¹ *Housing Vermont*,¹² the *Vermont Housing Finance Agency*, and *Vermont*

¹⁰ Community Development Block Grants (CDBG) is a program of the U.S. Department of Housing and Urban Development to provide funding for a range community development needs.

¹¹ Shires Housing is a nonprofit organization that provides safe and affordable housing options for limited income residents in Bennington County.

¹² Housing Vermont is a nonprofits syndication and development company that creates permanently affordable rental housing and enables investments in economic and community

*Community Loan Fund*¹³ that can provide assistance with initiating and financing affordable housing projects.

4. Establish partnerships with rental property owners to assist them in finding financial assistance to improve the condition of rental housing.

Goal: Improve housing affordability through energy efficiency standards for both new construction and existing homes.

See Section 8.0 Energy for related actions.

3.5.3 Special Needs Goals, Objectives, and Actions

Goal: Ensure that safe, affordable housing is available for people with special needs and the elderly.

Objective: Provide a range of living situations to residents of Pownal with special needs, including but not limited to independent and assisted living arrangements such as group homes, residential care facilities, and nursing homes.

Actions:

1. Collaborate with agencies like *Southwestern Vermont Council on Aging*¹⁴ to increase access to opportunities and programs that make living independently more affordable for seniors, such as programs that match elderly homeowners needing limited services with tenants who are willing to provide services.
2. Review and update bylaws to incorporate density bonuses for affordable special needs/senior housing; reducing parking requirements for elderly and/or affordable housing development, and for accessory apartments; and allowing accessory apartments within or attached to single-family dwellings to provide affordable housing, or supervision and care for elderly or relatives with special needs.

4.0 Natural Resources

Natural resources encompass terrestrial or upland resources such as 1) forests, woodlands and shrublands; 2) water resources including rivers, streams, wetlands, and

development in partnership with local organizations, public agencies and the private sector (see <https://www.hvt.org>).

¹³ The Vermont Community Loan Fund (VCLF) makes loans to businesses, community organizations, nonprofits, child care developers and others who don't qualify for loans from traditional lenders for investments in Vermont.

¹⁴ The Southwestern Vermont Council on Aging is a nonprofit organization that provides support and assistance to people 60 years and older in maintaining their independence (see <https://svcoa.org>).

groundwater resources; 3) unique natural features; and 4) rare plant and animal populations. For the purposes of this plan, natural resources also include agricultural lands which generally occur on agriculturally important soils. These resources are maintained and affected by landscape elements such as topography, soil characteristics such as water holding capacity and available nutrients, long term trends in precipitation and temperature, and periodic disturbance such as water level changes, windstorm, wildfire, and human uses and disturbances. There are a multitude of ecological relationships between the different natural resources and their components, and the resilience of these systems is dependent on maintenance of these relationships.

Natural resources provide a number of ecosystem services, which refer to the benefits humans derive from natural systems (Ecological Society of America 2000). These include:

- providing drinking water cleansed by passing through forests and wetlands;
- cycling and moving nutrients;
- cleansing the air to enhance air quality;
- reducing stormwater flows as water quantity and velocity is attenuated by forests and wetland;
- providing raw materials such as wood for various uses including fuel or mineral resources;
- reducing pest species by promoting native insect predators;
- sequestering of carbon to reduce CO₂ in the atmosphere;
- providing recreational uses including hiking, boating, birdwatching and recreational motor vehicle use;
- providing traditional uses such as hunting, fishing and foraging;
- providing food from crops;
- providing pollinators critical to fruit production.

Human productivity and well-being depend on the diverse ecosystem services provided by natural systems. Therefore, the long-term resilience of human systems is dependent on the long-term resilience of natural resources.

4.1 Biophysical Regions

Pownal contains parts of three biophysical regions in Vermont, which are large, distinct areas defined by geology, land forms and the kinds of plants and animals that inhabit them. (Map 3 Surficial and Bedrock Geology of Pownal and Map 4 Slope and Elevation of Pownal) (Thompson and Sorenson, 2000). The Taconics, which form the western boundary with New York, have older phyllite, an intermediate between shale and slate, which can be seen in some of the rock cuts of US 7, on top of younger limestones, so that the latter are generally found at lower elevations. Slopes are steep on the eastern side, but a bit more gradual on the west. In New York, the Taconics are near to the Rensselaer Plateau, a large, primarily forested area of hardwood forests and extensive wetlands. The Taconics have been mapped to include the

Hoosic River, which likely should be included in the Vermont Valley. That region, running through the lower elevations in the middle of the town, consists of limestone and other calcareous rocks. Between approximately 100,000 and 12,000 years ago, Vermont and most of northern North America were covered by over a mile of ice (Klyza and Trombulak, 1999). As the glaciers retreated, they deposited outwash and glacial lake sediments in the valleys while leaving till (the material over which the advancing glaciers moved) on higher elevations. Most development in Pownal is in these lowlands and valleys. The retreat of the glaciers also left large areas of sand and gravel deposits, some of which are currently mined. The Southern Green Mountains contain some of the oldest rocks in North America, more than one billion years old. Like the Taconics, these are covered in till. The Southern Green Mountains contain steep slopes, especially on the eastern side, as well as relatively flat areas creating plateaus.

4.2 Climate

Pownal is home to a volunteer-supported, cooperative weather observation station for the National Weather Service with data collected from 1975 to the present. Table 10 below shows these “station normals” or averages for the three decades for temperature and precipitation for 1981 to 2010.

Month	High Temperature (°F)	Low Temperature (°F)	Mean Temperature (°F)	Precipitation (in)	Mean Snowfall (in)
January	28.8	10.6	19.7	2.98	16.1
February	32.1	13.5	22.8	2.52	12.7
March	40.9	21.4	31.2	3.25	12.6
April	55.3	33.2	44.3	3.51	2.4
May	66.1	42.9	54.5	4.12	0.0
June	74.1	51.7	62.9	4.86	0.0
July	78.2	56.2	67.2	4.58	0.0
August	76.5	54.8	65.6	4.15	0.0
September	69.8	47.4	58.6	4.06	0.0
October	58.1	37.4	47.7	4.29	1.2
November	46.0	29.1	37.5	3.90	3.1
December	34.3	18.8	26.6	3.11	12.7
Annual	55.0 (Average)	34.8 (Average)	44.9	45.33	60.8

During the recorded period, there were 0.9 days greater than 90° F. The highest temperature recorded was 97° F on July 6, 2010. There were 12.4 days where the maximum

¹⁵ The National Oceanographic and Atmospheric Administration (NOAA), within the U.S. Department of Commerce, provides information on climate, weather and related information. The National Weather Service (NWS) is part of NOAA (see www.noaa.gov).

temperature was less than 32⁰ F and 27.7 days where the minimum temperature was less than 32⁰ F. The lowest temperature of -6⁰ F was recorded on January 5, 1981 and July 15, 2004.

Average temperatures in Vermont have risen 2.7⁰ F since 1941 with an increase of 1.5⁰F since 1990. Winter temperatures have risen more than summer temperatures. If these trends continue, the number of days above 90⁰F will likely increase and minimum temperatures also increase (Galford et al., 2014).

The average annual precipitation in Vermont has increased 5.9” since 1960. This trend is predicted to continue so that Vermont streams will have higher flows and possibly experience more frequent and greater flooding events (Galford et al., 2014). Increasing temperatures that are predicted to occur will likely reduce total winter snowfall. If precipitation falls as rain in the winter, river flows will be higher due to the lower evapotranspiration in the winter. Freezing rain may become more frequent, with resulting impacts to transportation and power systems (Galford et al., 2014).

4.3 Soils and Topography

Topography is an important factor in land use decisions as slopes greater than 20% are generally not suitable for development, including road or driveway construction and maintenance. Such areas have a higher degree of erosion and creating roads or driveways that can be safely used by passenger, truck or emergency vehicles is difficult if not impossible. There are approximately 13,326 acres of land in Pownal having slopes equal or greater than 20% (Map 4). One reason the rugged and mountainous areas of Pownal should remain free of development is to avoid the high costs of road maintenance and establishment and maintenance of proper drainage on steep slopes. School bus, fuel oil delivery and emergency services are also difficult in these areas, thereby increasing costs to the town and placing residents in danger. There are also 200 acres of land above 2,500 feet in elevation (Map 4). The use of this land is restricted by Act 250 since the lower temperatures, high winds, and shallow soils make these areas extremely fragile and susceptible to damage from human activity.

The U.S. Natural Resources Conservation Service¹⁶ has prepared soil surveys for all of Vermont by county (Britt et al., 2006). The surveys can be used to identify areas with suitability for or limitations for community development, agriculture, recreation, and forestry. The information has been made available as geographic information systems data that can be brought in, with other information, to map suitability for various uses. The wealth of information contained in the survey is a major resource and should be consulted by the Pownal Planning Commission in drafting zoning bylaws as well as the Development Review Board, landowners, and developers in reaching land-use decisions.

¹⁶ The Natural Resources Conservation Service (NRCS) is within the U.S. Department of Agriculture and provides information on soils, provides programs to assist farmers and supports conservation efforts (see <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/about/>).

Soil is unconsolidated material consisting of mineral or organic components that supports plants as well as soil fauna and flora. Soils have a variety of characteristics that determine the suitability of a given site or area for various uses, including forestry, agriculture and development. These characteristics are determined by the parent material of the soil, which can be bedrock or unconsolidated materials, such as glacial outwash or till, as well as by climate patterns, topography, and organism activity, including human activity. Map 5 shows depth to restrictive material (e.g., bedrock) and hydrologic soil group. The depth to restriction indicates the depth of soil until some condition prevents or limits further excavation. Soil hydric classes are dependent on similar characteristics and indicate how well water does or does not move downward into the soil.

4.4 Land Cover Types

Table 11 below shows the approximate area of cover types in Pownal as of 2011. Nearly 80% of the town is forested.

Table 11. Cover types in Pownal based on 2011 land cover data (National Oceanographic and Atmospheric Administration, 2017)		
Type	Acres	Proportion
Deciduous Forest	17,276	59%
Evergreen Forest	3,076	10%
Mixed Forest	2,811	10%
<i>Total Forests</i>	<i>23,163</i>	<i>79%</i>
Palustrine Forested Wetland	836	3%
Palustrine Scrub/Shrub Wetland	309	1%
Palustrine Emergent Wetland	154	1%
Palustrine Aquatic Bed	15	0%
Open Water	114	0%
<i>Total Wetlands and Waterbodies</i>	<i>1,428</i>	<i>5%</i>
Pasture/Hay	3,572	12%
Cultivated Crops	371	1%
<i>Total Agriculture</i>	<i>3,943</i>	<i>13%</i>
Bare Land	171	1%
Grassland/Herbaceous	162	1%
Scrub/Shrub	302	1%
<i>Total Grasslands and Shrublands</i>	<i>635</i>	<i>2%</i>
Developed, Low Intensity	400	1%
Developed, Open Space	304	1%
Developed, Medium Intensity	189	1%
Developed, High Intensity	20	0%
<i>Total Developed</i>	<i>912</i>	<i>3%</i>
Grand Total	29,446	100%

Map 6 shows the major land cover groups listed in Table 12.

4.5 Forests

Detailed mapping of cover types has not been completed, but Table 12 below shows the likely matrix forest types by biophysical region. These matrix forest types cover large areas and may have numerous other community types, including terrestrial communities, wetlands and stream courses within them. Matrix forests form the “basket” in which a diverse array of natural communities exists (Poiani et al., 2000). These smaller communities are maintained by variations in environmental gradients such as soil depth, depth to groundwater, exposure to wind and solar radiation, disturbance and other factors. Much of the Vermont Valley includes developed and agricultural areas and smaller forest patches as well as some wetlands.

Table 12. Likely forest types in Pownal (Thompson and Sorenson, 2000)	
Biophysical Region	Matrix Communities
Taconic Mountains	Northern Hardwood Forest Rich Northern Hardwood Forest Mesic Maple-Ash-Hickory-Oak Forest
Vermont Valley	None Known
Southern Green Mountains	Montane Spruce-Fir Forest Montane Yellow Birch-Red Spruce Forest Northern Hardwood Forest

Map 6 shows natural cover types as classified through the National Oceanographic and Atmospheric Administration from 2010 (NOAA 2017). Forests are the largest land cover type in Vermont and there are many forests that have not been fragmented by roads, development, power lines or other features. Map 7 shows areas, described below, identified in the Vermont Conservation Design program as those areas necessary for the long-term ecological function of a diversity of species and natural communities and which require large-scale conservation to remain viable (Sorenson et al., 2015). 24 V.S.A. §4382 requires that town plans identify these areas and incorporate goals and policies to minimize forest fragmentation and promote the health, viability, and ecological function of forests. Plans may include specific policies to encourage the active management of those areas for wildlife habitat, water quality, timber production, recreation, or other values or functions (Vermont Agency of Natural Resources, 2017a).

High Priority Interior Forest Blocks are areas of contiguous forest, unfragmented by roads, development or agricultural lands that may also contain wetlands, waterbodies and other features. These areas are critical to wide ranging species as well as Neotropical migratory bird (Vermont Wildlife Action Team, 2015) (Rosenberg et al., 2016). They also are likely to be most

resilient to climate change (Anderson et al., 2016). There are approximately 13, 414 acres of high priority forest blocks in Pownal.

Highest Priority Connectivity Blocks overlap with the High Priority Interior Forest Blocks and link forests and other habitat providing for the movement of wide-ranging species such as black bear and bobcat and animals with small ranges such as amphibians that breed in wetlands and vernal pools. They also provide habitat for many forest nesting birds that migrate to and from the tropics. These blocks cross local, county and state and sometimes international boundaries. The Nature Conservancy has identified connections between the Taconics, the Berkshires and the Rensselaer Plateau, while the Green Mountains connect to forest blocks to the north, east and south.

Physical Landscapes (also called Physical Landscape Diversity Blocks) are areas of natural vegetation that may contain unique geologic, topographic and vegetation characteristics, and may also overlap with the above-mentioned types. Within Pownal, there is a north-south running feature called the Vermont Escarpment and an area called the Precambrian Plateau that goes into Stamford to the east.

Wildlife Road Crossings are road segments with suitable habitat on both sides of the road that provide connections for movement of animals.

Ecologically functional landscape is one that provides for connectivity across a broad range of habitat types and physical features such as slope, aspect and elevation. Three of the components of such a landscape are described above. The two aquatic components are discussed below (Vermont Wildlife Action Team, 2015).

Forest resources provide employment and scenic benefits to the Town and region. In addition, these areas serve as vital sources and recharge areas for public and private water supply. Forests greatly reduce the volume and velocity of water flowing downhill following rainfall or snow melt and therefore are critical to attenuating floods and maintaining flood resiliency. The high-quality forest environment also provides a recreational resource with a wilderness character, serves as a wildlife habitat, and prevents soil erosion. Forests also provide woody raw material for construction, firewood, and paper products.

Development can cause both the reduction in total forest area and fragmentation manifested by the splitting of forest blocks into disconnected stands. Fragmentation can reduce the ability of animals to move due to roads and other barriers, reduce the abundance of species dependent on large forest blocks, and provide pathways for invasive species¹⁷ that can outcompete native species and interfere with regeneration of native trees. Fragmentation can also make forestry operations less economically viable or more difficult to practice while

¹⁷ Invasive species are non-native plants, animals and other organisms introduced to natural systems that can reduce the viability of those systems and can harm the economy and human health (see <https://vtinvasives.org/intro-to-invasives/what-are-invasive-species>).

avoiding conflicts with residential and other uses. New roads can increase stormwater runoff and reduce infiltration into groundwater resources.

4.6 Surface Water Resources

Pownal lies entirely within the Hoosic River Watershed, a tributary of the Hudson River. The Hoosic flows from North Adams, Massachusetts, northwestward along the western border of Pownal, into upstate New York, where it eventually drains into the Hudson River. The Hoosic is lined on the west by the ridge of the Taconic Range and on the east by the Hoosac Range. The relatively flat topography of the floodplain in Pownal contrasts sharply with the steep hills of the Taconics, which line the west side of the river valley. Extreme rain events in which water swiftly moves down the slopes can lead to rapid changes in water level in the valley with potentially damaging effects. In addition to the meandering Hoosic, there are a number of other major water sources, small brooks and streams, which flow into the valley and settled areas of the Town, such as Ladd Brook, Jewett Brook, Bathtub Brook, and South Stream. The encroachment, diversion, or obstruction of these draining channels can increase flooding and intensify erosion hazards. The Nature Conservancy¹⁸ has characterized these headwater streams in Pownal as coldwater streams, moderately buffered in terms of acidity. This is due to their relatively high gradient and the chemistry of the bedrock. Streams flowing through limestone may have different fish and invertebrates from those flowing through more acidic bedrock. High gradient, groundwater fed streams are often colder than low gradient, slow moving streams, and cold water can hold more oxygen than warm water. Jewett Brook is highly buffered as it flows through more calcareous bedrock, while Broad Brook is more acidic (Olivero and Anderson 2008 and 2013).

The Vermont State Wildlife Action Plan (2015) describes the following:

Surface Water and Riparian Areas¹⁹ are the network of lakes, ponds, rivers, streams and riparian zones in which geophysical processes occur and provide for connection of these surface waters to groundwater.

Riparian Areas for Connectivity are the riparian lands adjacent to the surface water areas that provide for movement of wildlife and plants between riparian areas and between those and terrestrial systems. These may also connect forest blocks.

In the valley, if rivers and their floodplains are constricted or straightened by human encroachments, the energy and speed of water will increase and the rate of incision and the resulting sediment and debris transported downstream will cause more damage. Likewise, the

¹⁸ The Nature Conservancy (TNC) is a nonprofit organization that operates globally to conserve the lands and waters on which all life depends. Vermont has a chapter of TNC (see <https://www.nature.org>).

¹⁹ Referred to as Highest Priority Surface Water and Riparian Areas in Vermont Conservation Design (Sorenson et al., 2015) and on Map 7.

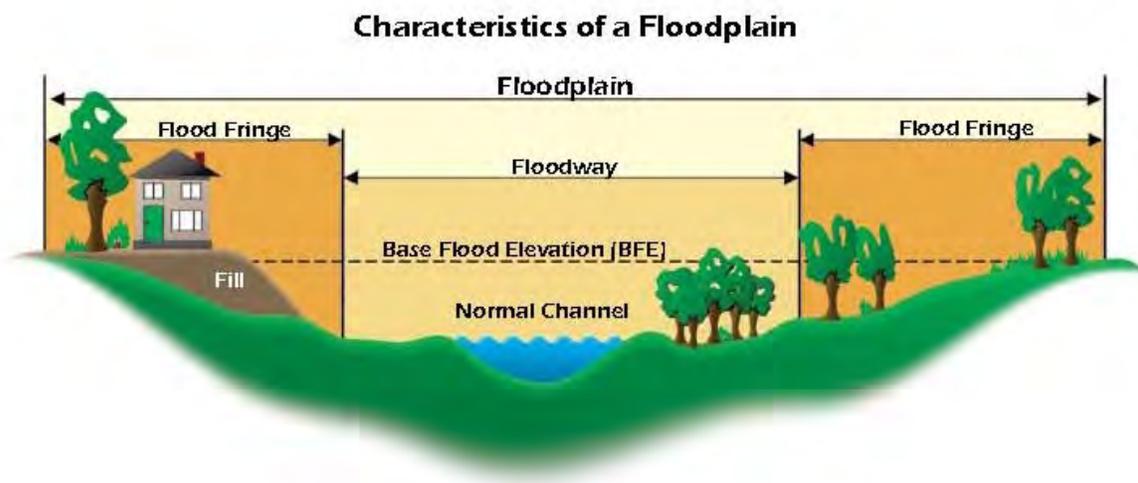
encroachment and filling in of wetlands will also intensify the rate and amount of water entering the floodwaters, escalating the hazards from flooding.

4.6.1 Special Flood Hazard Areas

There are two types of hazards from flooding in Vermont -- inundation and fluvial erosion. Inundation flooding occurs when water rises above a stream channel or waterbody due to a significant amount of rain or snow melt, or when debris or ice jam block the stream, and overflows onto low lying normally dry land. The Federal Emergency Management Agency (FEMA)²⁰ manages the mapping of these areas and uses data to create flood hazard maps that outline the community's range of flood frequencies up to and including the one percent annual chance flood (i.e. base flood). These maps, called Flood Insurance Rate Maps (FIRMs), are used by the insurance industry to rate flood insurance policies according to the flood risk of the property to be insured. The land area covered by the base flood area is identified on the FIRM as the Special Flood Hazard Area (SFHA). Figure 3 below shows the parts of a typical floodplain. Map 8 shows the Special Flood Hazard Areas for Pownal.

The SFHA is the area where the National Flood Insurance Program's (NFIP's) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. This is the regulatory standard also referred to as the "100-year flood." There are different areas or zones delineated within the SFHA. In Pownal, only 4.6% of the town's area is within the SFHA, and this is primarily along the Hoosic River, Jewett Brook, and South Stream. Of the SFHA in town, 2.9% is within Zone AE (1% annual chance with elevations), 1.3% within Zone A (1% annual chance with no elevations), and 0.4% in the area identified as the 500-year floodplain (0.2% annual risk).

Figure 3. Typical floodplain



²⁰ The Federal Emergency Management Agency (FEMA) is an agency within the U.S. Department of Homeland Security that provides information and assistance to respond to disasters and reduce potential damages from such disasters (see <https://fema.gov>)

Type	SFHA	River Corridor
Camp	1	0
Commercial	3	2
Commercial Farm	1	0
Educational	0	1
Government	1	3 ²¹
House of Worship	1	1
Industrial	2	1
Manufactured Homes	118	17
Single Family Home	36	54
Solar Facility	1	1
Other Commercial	2	2
Other	4	2
Total E911 Sites	170	78

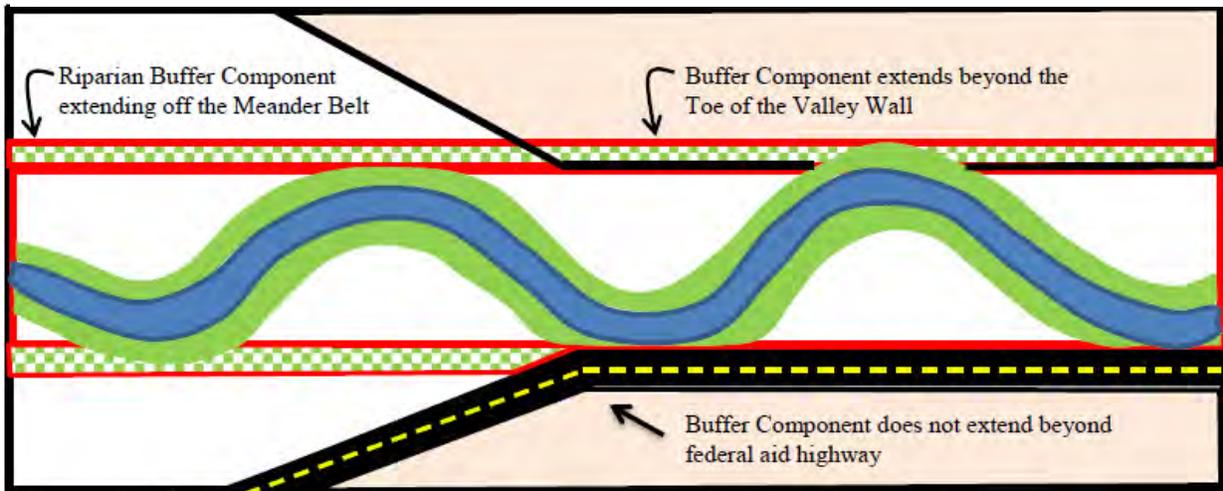
FEMA has updated the flood hazard maps since those published in 1980. The new maps became effective in December of 2015, and information from these new maps is shown in Map 8. According to a mapping analysis of E911²² locations (2016), 170, or 10% of the total number of structures in Pownal are within the Special Flood Hazard Area as identified on the flood insurance rate map for Bennington County, which became effective on December 2, 2015 (Federal Emergency Management Agency, 2017) (Table 13). This includes 154 residences and 2 critical structures. An additional 34 structures are identified to be within the extent of the 0.2% (500-year) annual risk area, including 28 residences.

These structures are located primarily in concentrated areas in North Pownal, in Pownal north of the racetrack, and along Jewett Brook (See maps that follow).

4.6.2 River Corridors

In Vermont, most flood damage to private property and public infrastructure results from fluvial erosion rather than inundation. However, FEMA flood hazard maps only show areas at risk for inundation and do not adequately identify areas at risk of erosion. Through the

Figure 4. River corridor



²¹ Includes the East Pownal Fire Station on South Stream Road

²² E911 locations are sites of buildings and other structures maintained by the Enhanced 9-1-1 Board (see e911.vermont.gov).

direction of the Vermont General Assembly, the Agency of Natural Resources (ANR)²³ has identified and mapped areas with the highest fluvial erosion hazard, which they have called “river corridors.” River corridors encompass the area of land surrounding a river that provides for the meandering of the river, the formation of the floodplain, and for riparian functions necessary to restore and maintain the naturally stable (i.e., least erosive) form of a river which will minimize erosion hazards over time.

In simple terms, river corridors show the land most vulnerable to erosion from movement of the river. Preventing further encroachment into the river corridor will minimize fluvial erosion hazards and property loss, enhance public safety, maximize channel stability, and maintain or improve water quality and habitat function. VT ANR staff have mapped these areas using available field data as well as mapping through the use of geographic information systems analyses (Map 8). The data were used to calculate the “meander belt width” or area within which a river would move across the valley (Figure 4). As rivers shift their location both vertically and horizontally, erosion of adjacent lands can occur and threaten properties that may be outside of special flood hazard areas (Klein, 2010). Table 13 indicates there are 78 structures within the river corridor.

4.6.3 Wetlands

Wetlands are areas that support hydrophytic vegetation, or vegetation that tolerates flooded conditions during the growing season. Wetlands are inundated or saturated for anywhere from a few weeks to year-round. In addition to dominance by hydrophytic vegetation, wetlands must show evidence of being at least seasonally saturated or flooded and must have hydric soils or soils that are flooded or saturated during a portion of the growing season (Vermont Agency of Natural Resources, 2017a).

The Vermont Significant Wetland Inventory shows approximately 1,290 acres of wetlands in Pownal (see Map 8). Wetlands provide the following functions and values: water storage including flood water storage and attenuation, water quality protection, erosion control, fish and wildlife habitat, habitat for sensitive plants and animals, exemplary natural communities, opportunities for education, research, and recreation, economic benefits from recreation, and open space.

4.6.4 Shore lands

Use of the land surrounding Barber and Thompson’s Ponds can have a significant impact on the quality of these water bodies. Intensive residential development with on-site sewage systems adjacent to the Ponds will result in eutrophication, excessive vegetation and perhaps the choking of the pond or lake. If this does indeed occur, these water bodies will lose depth as

²³ The Vermont Agency of Natural Resources promotes the sustainable use of Vermont's natural resources, protects and improves the health of Vermont's peoples and ecosystems, and promotes sustainable outdoor recreation (see anr.vermont.gov).

the decaying vegetation builds up from the bottom until a swamp appears where these ponds once existed.

4.6.5 Groundwater Resources

Data from the Vermont Agency of Natural Resources indicates there are 616 private wells in Pownal and 19 public sources. Most (447) of the private wells are in areas mapped as bedrock or glacial till with the remaining in some form of glacial or post glacial material. DeSimone and Dethier (DeSimone and Dethier, 1992) described the Hoosic valley as a principal groundwater resource, with fractured carbonate bedrock beneath the glacial deposits. Shallow wells of less than thirty feet in depth were considered vulnerable to drying during drought periods or to contamination. Records indicate there are 45 wells less than 100 feet in depth.

4.7 Rare Plants, Natural Communities and Unique Natural Features

4.7.1 Regionally Significant Resources

The Green Mountains and the Taconics, within the Town of Pownal, are approximately 9,530 and 3,890 acres in area respectively or 31.6% and 12.9% of the total area of Pownal (Map 9). Both areas have extensive forests, extensive river and riparian areas, wetlands and waterbodies providing water to the lower elevations. These two areas represent both Highest Priority Forest Blocks and Highest Priority Connectivity Blocks. The Green Mountains also contain areas of Physical Landscape Diversity Blocks all of which are described in 4.5 above. These large forest blocks provide habitat for black bear and other wide-ranging animals and for forest nesting birds, many of which only nest in large forested areas that have not been split by roads and development. Both areas offer major recreational opportunities for hiking and hunting as well as forest resources. The Taconics actually extend from Connecticut, north through Massachusetts into western Vermont and parts of eastern New York. The Green Mountains also are found in Massachusetts where they are called the Berkshires and in Connecticut as the Litchfield Hills.

4.7.2 Rare Species and Natural Communities

The Vermont Diversity Program within the Wildlife Management Program of VT ANR maintains an inventory of rare, threatened and endangered species and natural communities in Vermont (Map 9). This is part of a national and international effort to catalogue the biodiversity of the planet. Table 14 below summarizes the number of occurrences of species (animal and plant) and communities by their state ranks. An occurrence is a separate location of a rare species or natural community, so the numbers in Table 14 represent the number of locations found in Pownal. Some species are given two ranks where the status is uncertain, but the rarer rank applies in those cases.

In addition to state rankings, global, or 'G', rankings exist. A rank of G3 or lower is considered "globally rare" with less than 100 occurrences in the world. Three animal species,

four plant species and two natural communities found in Pownal are ranked G3. Vermont protects threatened and endangered species under Title 10, Conservation and Development, Part 4, Chapter 123. In Pownal, one animal and 20 plants are listed as endangered. An additional twenty-two plants are listed as threatened. Map 9 shows the general locations of rare plant and animal populations and natural communities.

Table 14. Summary of the number of rare species and natural communities in Pownal by their state rank. (Marshall, 2016)											
Type	S1	S1?	S1S2	S2	S2S3	S3	S3S4	S4	SH	SU	Total
Animal	5		2	3	2		1			1	14
Plant	54	1	4	47	26				2	2	136
Natural Community				12		13		4			29
Total	59	1	6	62	29	13	1	4	2	3	179

4.7.3 Unique Natural Features in Pownal

The following is a list of identified significant natural features which should be considered for special protection status.

Table 15. Unique natural features identified by the Pownal Planning Commission	
Site	Characteristics
The Dome	Location: About 3.5 miles east northeast of Pownal Village. Elevation: 2,748 feet. Being the highest peak in the Town, the Dome has regional, scenic, and recreational significance.
Krieger Rocks	Location: The rocks area exposed for about one mile along the Hoosic River. There are two main outcroppings, one above the Tannery in North Pownal and the other 3/4 of a mile south. Elevation: The summit above the rocks is 1,240 feet; the base is 530 feet.
Potholes in Wasthtub or Bathtub Brook ("The Tubs")	Location: About 1.5 miles north northeast of North Pownal. Elevation: About 700 feet. "The Tubs" consist of three pothole formations in the course of the stream. A narrow passage has eroded through crystalline marble and limestone. The middle "tub" is a typical pothole; revolving stones whirl in its waters. The bowl is about six feet deep, and of an elliptical form about 26 feet in circumference.
Hemlock Gorge	Location: 2 miles north northeast of North Pownal. Elevation: Between 760 and 1,050 feet. A deep rock gorge along Bathtub Brook, the rocks are moss covered and old hemlocks rise at various angles from the steep sides.

Table 15. Unique natural features identified by the Pownal Planning Commission	
Site	Characteristics
Barber School Meadows	Location: Approximately 1.75 miles east of Pownal Center, adjacent to Barber Pond. Elevation: 1,100 feet A scenic area of flat boggy meadows with remnants of rare plants.
South Stream Waterfowl Area	Location: East Pownal, along South Stream Road. Elevation: 1,090 feet. A shrub swamp, deep marsh, and a small pond of about 10 acres impounded by a man-made dam. Provides breeding habitat for waterfowl. Total of 368.5 acres.
Chalk Pond	Location: Approximately 1.5 miles northeast of Pownal Village. Elevation: 1,320 feet. Old boggy pond enclosed by shrubs and having a mixture of calcareous algae and diatoms.
Cranberry Bog	Location: 1.5 miles east of Pownal Center along Barber Pond Road. Elevation: 1,150 feet. An open bog mat dominated by sphagnum and sedges with unusually rich bog flora.
Maple Grove School Swamp	Location: Adjacent to the Bennington boundary in East Pownal. Elevation: 1,050 feet. A swamp forested with hardwoods and supporting a variety of rare plant species.
Middle Pownal Road Swamp	Location: East of Middle Pownal Road. Elevation: 1,080 feet. Hardwoods swamp containing at least three types of swamp communities.
Peckham Hill	Location: Approximately 1.5 miles northwest of North Pownal. Elevation: 1,290 feet. An oak-hickory forest community (found very frequently in Vermont) with 3 to 4-inch stem flowering dogwood and sassafras.
Pownal Mountain Laurel	Location: Reservoir Hollow, west of North Pownal. Elevation: 1,000 feet. The only extensive occurrence of mountain laurel in southwest Vermont.
Pownal Red Pines	Location: 1 mile south of Thompson's Pond. Elevation: 1,600 feet. A stand of 15 red pines between 14 and 20 inches in diameter breast high. This tree is found very frequently in the Bennington region.
Swamp of Oracles	Location: Approximately one quarter mile west of Sweet Road. Elevation: 1,280 feet. A secluded swamp which once supported a great variety of orchids, this site is threatened with destruction by residential development.
Deer Yard of Pownal Village	Location: One-half mile east of Pownal Village. Elevation: 1,000 feet. A wooded area on the lower southwestern slopes of Mason Hill and along Ladd Brook providing shelter and browse for deer. The yard is crucial to the survival of the deer herd in the region.

4.7.4 Deer Wintering Areas

Several areas within the Town also contain deer winter range, as mapped by The Vermont Department of Fish & Wildlife (Map 9). These forest areas are generally typified by concentrations of softwoods species (pines, hemlock, spruce) with high crown closure. These areas provide numerous thermal and microclimatic advantages to the deer such as reduced snow depths, less wind, increased daily mean temperatures, and increased relative humidity. Forest stands of the type described should be carefully examined for deer use to reduce the impact that potential development may have on these critical habitat areas.

4.7.5. Black Bear Habitat

Black bear and other wide-ranging animals are dependent on large, undeveloped tracts of land. The Vermont Agency of Natural Resources does not provide spatial data on black bear habitat, but the large forest blocks shown in Map 7 are areas providing habitat for many species, including bears, that depend on unfragmented habitat.

4.8 Agricultural Lands

Approximately 2,200 acres are in agricultural use in Pownal. Map 6 showing cover types also shows agricultural lands. Map 9 shows agricultural soils. Since Pownal has traditionally been a farming community, and its rural character is one of its greatest assets, the Town supports creative measures to preserve agricultural land. The protection of prime agricultural land in Pownal is desirable for reasons beyond the basic desire to preserve a bucolic lifestyle. As transportation costs increase, locally grown food products will become more essential. Vermont-made products are also widely sought-after by residents and visitors alike and should be actively encouraged and supported. The pastoral landscape is a foundational pull for Vermont's substantial tourist trade.

4.9 Existing Natural Resource Programs

4.9.1 Forest Protection

There are approximately 9,800 acres of land designated in the Forest District in Pownal. The forest land boundaries were redefined in a 1995 Zoning Bylaw. Because of the topography, soil conditions, high elevation, and inaccessibility of these areas, such land is unsuitable for development. Yet this forest land provides critical support for public health and welfare.

Much of the forest areas are fragile, sensitive environments, so permanent improvements and structures for year-round use are generally inappropriate in these areas. However, some forest management plans allow certain structures for the enhancement of recreational activities. For example, new camps can be located on lots not less than 25 acres and only chemical incinerator or privy type toilet facilities may be used.

The Town owns three separate parcels on the West Mountain. Each parcel has had a forest management plan in the past, but these plans are out of date and require updating. One 40 +/- acre parcel has had a successful timber harvest with the proceeds being placed in a Timber Harvest Fund for managing the land. The 73-acre Swallow Hill forest parcel was acquired by gift in October 1997 and some minor forest management has been done under the forest management plan for that area. The property previously known as The North Pownal Tannery woodlands, consisting of over 750 acres, was purchased by the Town with the help of funding from the Vermont Land Trust,²⁴ The Nature Conservancy and the Vermont Housing and Conservation Board.²⁵ The town dedicated the land in the name of Alan Strobridge, a selectman that passed away after having helped with the process of obtaining this land for public use. These areas are set aside for forestry, conservation purposes and public use.

It is the intent of the Town to comply with terms set out in the tracts' acquisition documents, and to be responsible stewards and active participants in protecting these valuable resources for all to enjoy. Subsequent to updating the forest management plans, future harvest and management activities will be undertaken according to the requirements of the forest management plans and approval by the other agencies as outlined in the management plans. Secondary goals will be to enhance recreational opportunities for townspeople such as hiking, horseback riding, cross country skiing, picnicking, and hunting and to promote future timber resources.

Pownal residents need to take an active role in the management of forest resources. Forest management practices in Pownal should be under the guidance of the county forester or other qualified personnel. These practices should be attentive to the need for protecting the water supplies which flow from this area.

4.9.2 Wetlands Protection

Wetlands are protected pursuant to 10 V.S.A. § 6025(d) (5). The Vermont Wetlands Program, located within the Vermont Agency of Natural Resources, has classified wetlands into Class 1, 2 and 3 wetlands based on their quality and functional characteristics. A wetlands permit is required for a variety of activities that could negatively affect wetlands including actions within 100 feet of a Class 1 wetland and 50 feet of a Class 2 wetland. Some activities such as certain silvicultural activities and activities where agricultural activities involving the growing of food are exempt. The U.S. Army Corps of Engineers also has jurisdiction over filling or dredging wetlands (Vermont Agency of Natural Resources, 2017a).

²⁴ The Vermont Land Trust (VLT) is a nonprofit organization that conserves productive recreational and scenic lands within Vermont (see <https://vlt.org/>).

²⁵ The Vermont Housing and Conservation Board (VHCB) provides funding for affordable housing and for conserving agricultural lands, forests, natural areas and historic properties.

4.9.3 Stormwater²⁶ Management

The Vermont Stormwater Management Program requires a permit for discharges from areas of impervious surfaces greater than one acre in area with exemptions for agricultural uses and for certain small projects. There are also requirements for reducing erosion from town roads described in the Transportation section. The new stormwater management rule (Chapter 18 of the Environmental Protection Rules) and the 2017 Vermont Stormwater Management Manual (Environmental Protection Rule Chapter 26), which took effect on July 1, 2017 require towns adopt a variety of strategies to reduce water velocity, encourage flows to enter the soil, and trap sediments in vegetation to reduce sediment discharge into rivers, streams, and wetlands (Vermont Agency of Natural Resources, 2017b).

4.9.4 Flood Resiliency

Flooding is the most common natural hazard event in Vermont causing widespread damage and destruction. Title 24, Chapter 117 of the Vermont Statutes lists goals to encourage flood resiliency to be incorporated in municipal plans through a flood resilience component, which should do the following:

(i) Identifies flood hazard and fluvial erosion hazard areas, based on river corridor maps provided by the Secretary of Natural Resources pursuant to 10 V.S.A. § 1428(a) or maps recommended by the Secretary, and designates those areas to be protected, including floodplains, river corridors, land adjacent to streams, wetlands, and upland forests, to reduce the risk of flood damage to infrastructure and improved property; and

(ii) Recommends policies and strategies to protect the areas identified and designated under subdivision (12) (A) (i) of this subsection and to mitigate risks to public safety, critical infrastructure, historic structures, and municipal investments.

4.9.5 National Flood Insurance Program (NFIP)

FEMA administers the National Flood Insurance Program (NFIP), which provides federally subsidized flood insurance to participating communities. The NFIP is designed to mitigate flood losses through effective local ordinances and to provide affordable flood insurance for property owners. Community participation in the program is voluntary and land use decisions are made at the local government level. Towns that participate in NFIP are required to mitigate losses in Special Flood Hazard Areas (SFHAs) identified by FEMA through floodplain management ordinances. Participation in NFIP is the best first step to preparing ahead of time for the next flood. Pownal received a flood hazard boundary map (FIRM) in 1974 and joined the NFIP in April of 1980, when it adopted flood hazard area regulations in

²⁶ Stormwater originates from rainfall and snow melt and may flow into the soil, into streams and wetlands, down roads and other conveyances. Stormwater management addresses potential damages and soil erosion from stormwater.

accordance with FEMA's minimum standards. Because Pownal is a member of the NFIP, residents and business owners of the town are able to purchase flood insurance. Eight percent (8%) of buildings in the SFHA in Pownal have flood insurance in (Flood Ready Vermont, 2017).

4.9.5 Emergency Relief and Assistance Fund (ERAF)

When a community requires public assistance after a declared disaster, FEMA funds generally cover 75% of the loss, with the remaining 25% covered by the state and affected town. The Emergency Relief and Assistance Fund (ERAF) provides additional state funding to the affected town to supplement federal public assistance. The amount provided by the state through ERAF varies depending on whether or not the affected town has adopted certain hazard mitigation measures. For disasters after October 23, 2014, the State of Vermont contributes an additional 7.5% toward the costs, leaving towns responsible for the remaining 17.5% of the total cost of the project. For communities that have adopted all of the following four measures to reduce flood damage, the State will contribute 12.5% or half of the required 25% match:

1. Agency of Transportation²⁷ Town Road and Bridge Standards
2. A Local Emergency Operations Plan (LEOP)
3. Participation in the National Flood Insurance Program (NFIP)
4. A Local Hazard Mitigation Plan (LHMP)

In addition to these four measures, towns that are actively participating in FEMA's Community Rating System, or that have adopted river corridor regulations that meet or exceed state standards, are eligible for 17.5%, and pay only 7.5% of total disaster repair costs.

4.10 Natural Resource Goals, Objectives and Actions

4.10.1 Overall Natural Resource Goals

Statewide Goal #5 (24 V.S.A § 4302): *To identify, protect, and preserve important natural and historic features of the Vermont landscape, including:*

- *significant natural and fragile areas;*
- *outstanding water resources, including lakes, rivers, aquifers, shorelands, and wetlands;*
- *significant scenic roads, waterways, and views;*
- *important historic structures, sites, or districts, archaeological sites, and archaeologically sensitive areas.*

²⁷ The Vermont Agency of Transportation or AOT or VTrans plans, develops, implements, and manages a statewide transportation network - including roads, bridges, railroads, airports, park-and-rides, bicycle and pedestrian facilities, and public transportation facilities and services (seevtrans.vermont.gov).

Statewide Goal #6: *To maintain and improve the quality of air, water, wildlife, and land resources.*

- *Vermont's air, water, wildlife, mineral and land resources should be planned for use and development according to the principles set forth in 10 V.S.A. § 6086(a).*
- *Vermont's water quality should be maintained and improved according to the policies and actions developed in basin plans established by the Secretary of Natural Resources under 10 V.S.A. § 1253*
- *Vermont's forestlands should be managed so as to maintain and improve forest blocks and connectors.*

Statewide Goal #9: (24 V.S.A § 4302): *To encourage and strengthen agricultural and forest industries.*

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

Pownal Natural Resource Goal 1: Discourage development that encroaches upon or adversely impacts unique natural features; and to pursue land-use policies and development plans that are harmonious with wildlife species and their habitats, recognizing and committing to protect the full range of habitats and species in the Town.

Pownal Natural Resource Goal 2: Support policies and new developments that protect and maintain the rural character of Pownal, with special attention to preserving the Town's prime agricultural soils and historically farmed lands and to promoting the general health, safety, and welfare of the public.

Pownal Natural Resource Goal 3: Encourage land development that avoids or minimizes impacts to physical constituents of the land (such as soils, surface and groundwater, naturally existing drainage areas, etc.), and the ecosystems and species they support (forests, natural communities, etc.), with particular attention to rare and endangered species.

4.11 Forest Goals, Objectives, and Actions

Goal 1: Assure that forested areas remain available for limited public use, which may include both traditional recreational activities and appropriate forestry.

Objective: Limit new development in forested areas to improvements for public recreational use or commercial forestry, thereby maintaining the wilderness character of these lands for the

public.

Actions

1. Encourage cluster development to protect open space and reduce lot sizes where soil, topography, and other site conditions permit. (Planning Commission)

Goal 2: Conserve and manage the Highest Priority Interior Forest Blocks that occur within the town and extend beyond the town boundary.

Objective: Keep the Interior Forest Blocks and Connectivity Blocks unfragmented to provide habitat for wide ranging organisms, Neotropical migratory birds, and to maintain forest integrity.

Actions:

1. Use Maps 6 (Natural Cover Types), 7 (Terrestrial and Aquatic Resources) and 9 (Unique Natural Features) when reviewing development proposals to minimize or avoid direct impacts, fragmentation and the creation of barriers for movement of species.
2. Revise the Conservation Overlay zone to incorporate information from Maps 6, 7 and 9 so as to maintain unfragmented forest blocks and connectivity between natural features and habitat.
3. Support the forest conservation activities of groups such as the U.S. Forest Service and nonprofit conservation organizations in Pownal.
4. Develop an enhanced Energy Planning Element that meets the requirements of the Vermont Department of Public Services to identify areas where the construction of cell towers, wind turbines or other development projects should be prohibited to avoid fragmenting interior forest blocks and connectivity blocks and seek 'substantial deference' standing from the Public Service Board.

Goal 3: Encourage private landowners to manage their forests sustainably.

Objective: Increase the percentage of private landowners with forest management plans and enrollment in the Use Value Assessment Program to help private landowners retain their lands as forest.

Actions:

1. Provide information in the Town Hall and Town website on forest management options for private landowners.
2. Organize annual workshops for forest landowners on forest management needs and options.

4.12 Surface and Groundwater Goals, Objectives, and Actions

Goal 1: Maintain land cover that provides for water retention, reduced quantity and velocity of flow and groundwater recharge to adequately address the impacts from flooding and erosion and to protect surface and groundwater resource quantity and quality.

Goal 2: Avoid the destruction, diversion, or contamination of rivers, streams, waterbodies and shorelands and wetlands that could potentially increase flooding, destroy wildlife habitat, result in erosion, or detract from their scenic quality.

Goal 3: Protect the water quality of the Hoosic River and its tributaries as well as South Stream and Jewett Brook.

Objective: Use local bylaws and coordinate with state agencies to assure that land use proximate to wetlands, streams and water bodies and surface and groundwater source protection areas does not adversely affect the quality of surface and groundwater resources.

Actions:

1. Employ zoning and development review as tools to protect the quality of streams, water bodies, and drainage channels including Riparian Wildlife Corridors and Highest Priority Surface Water and Riparian Areas (Map 7).
2. Encourage landowners to improve on-site sewage disposal systems to reduce nutrient input into surface and groundwaters and limit or prohibit the expansion of existing uses if existing systems are not upgraded.
3. Amend the Town Bylaws to assure that natural resources are protected.
4. Protect small streams draining the hollows along with the more major water sources including Tubbs Brook, Ladd Brook, Jewett Brook, Bathtub Brook, and South Stream by maintaining a 100-foot buffer zone within the normal bank of any stream or drainage way.
5. Incorporate requirements for erosion and sediment control consistent with the Vermont Stormwater Manual into the Town Bylaws. Address sources of sedimentation within the town to reduce erosion into streams that enter the Hoosic.
6. Through regulation and/or the acquisition of fee or easements, protect areas which provide water supplies from any disturbance which affects the quantity of clean water for public use. This includes surface and ground waters used for shallow wells in populated areas within the towns.
7. The Planning Commission and the Developed Review Board should emphasize appropriate development in the villages and their abutting areas to better protect the agricultural, forest areas and water resources of the town.
8. Make every attempt to preserve open and agricultural land, the natural resources listed above as well the public health, safety, and welfare when the Development Review Board reviews site plans.

Goal 4: Protect and encourage the long-term stewardship of wetlands to support their significant functions, natural communities, wildlife habitat and rare species habitat.

Objective: Avoid all development in Class I or II Wetlands and buffer areas to assure that there be net loss of wetlands and preserve all wetlands in their natural condition.

Objective: Restore and enhance the function of wetlands that have been negatively affected by human actions such as alteration of hydrology, colonization by invasive species, or other impacts.

Actions:

1. Amend the bylaws to assure that wetlands that provide critical flood storage functions remain undeveloped or have compensatory storage constructed to achieve no net loss of such wetland function and to improve Pownal's flood resilience.
2. Amend the bylaws to require mitigation including creation of new wetlands or payment of fees to acquire wetlands if wetland loss in a development project is unavoidable.
3. Collaborate with the Bennington County Regional Commission and with VT ANR to more accurately map wetlands within the town boundary.

4.13 Flood Resilience Goals, Objectives, and Actions

Statewide Goal #14: *To encourage flood resilient communities.*

- *New development in identified flood hazard, fluvial erosion, and river corridor protection areas should be avoided. If new development is to be built in such areas, it should not exacerbate flooding and fluvial erosion.*
- *The protection and restoration of floodplains and upland forested areas that attenuate and moderate flooding and fluvial erosion should be encouraged.*
- *Flood emergency preparedness and response planning should be encouraged.*

Pownal Flood Resiliency²⁸ Goal: To (1) increase the public's awareness about the harmful impacts of flooding and erosion, and work with property owners at greatest risk to implement measures to reduce their potential harm from flood hazards and damage; (2) ensure that the Town and its critical facilities can withstand and/or can be repaired or replaced following flood events; and (3) guarantee that the Town can receive the maximum funding available in the event of the next federally declared disaster.

²⁸ Flood resilience is the ability to recover from flood events and includes the ability to reduce vulnerability to such events.

Objective 1: Consider forests, surface waters, wetlands and other natural cover types at the watershed scale in determining land use and development to provide for economic development while increasing resilience to flood events.

Objective 2: Provide residents and property owners with access to information to help them make informed decisions to address potential impacts from flooding events.

Actions

1. Provide information showing the specific areas within the Town of Pownal that are at risk from flooding and fluvial erosion.
2. Revise the Town Bylaws so that they prohibit development within SFHA and river corridors, as delineated on the most recent FEMA special flood hazard area mapping, unless it can be shown by hydrologic and hydraulic analyses that such development will not exacerbate flooding or fluvial erosion.
3. Identify and prioritize existing homes and businesses at serious risk of flood damage in coordination with the VT ANR River Management Program and the Regional Planning Commission for mitigation actions such as elevation/relocation or purchase and demolition.
4. Do not permit that critical infrastructure like emergency services, power substations, and municipal buildings be built in the Special Flood Hazard Areas.
5. Flood proof existing structures to at least two feet above the 100-year flood elevation. Require that new development and substantially improved existing structures *must* be flood proofed to at least two feet above the 100-year flood elevation. Where flood proofing is not possible, consider buy outs of willing owners of property at risk.
6. Establish and sustain a flood hazard area education and outreach effort to foster flood damage mitigation and ensure property owners are better prepared for future flood damage.
7. Coordinate with the BCRC in hosting flood mitigation workshops for residential landowners and business owners, to educate them on measures to reduce flood risk and damage.
8. Encourage property owners to review the flood hazard and river corridor maps and consider flood proofing their property, implementing storm water management techniques, and/or purchasing flood insurance.
9. Purchase properties or development rights of properties within the SFHA and river corridor to permanently prevent development in those areas.
10. Promote agriculture, recreation fields, parks, and open space as appropriate uses of flood hazard areas, provided no new structures are constructed and no fill is introduced without town and state approval. Where necessary, easements should be acquired to assist landowners to continue to maintain their lands in agricultural or other uses appropriate to the special flood hazard and river corridor areas.
11. Restore and protect river corridors, flood plains, wetlands and upland forest areas that attenuate and moderate flooding and erosion.

12. Revise the Town bylaws so that they discourage development and preserve forest cover on steep slopes (20% and greater).
13. Maintain vegetated buffer strips along streams and rivers to protect water quality from erosion of soil from adjacent uplands.
14. Collaborate with the Vermont Agency of Natural Resources, the Bennington County Regional Planning Commission and landowners to lessen flood risk by restoring natural channel functions through removal of berms, dams, and levees, where practical. Property owners who attempt to improve property in the floodplain or the river corridor should not use channel constraints such as berms and bank armoring without state or federal approval.
15. Maintain bridges, roads, ditches, and culverts to Town Road and Bridge Standards in order to avoid incurring additional flood damage costs associated with failure of these critical structures.
16. Consistently maintain and update town bridge and culvert inventories. Use this information to develop a schedule to replace undersized culverts.
17. Address structural deficiencies in infrastructure and transportation as soon as possible.
 - a. Work with VTrans and the BCRC to improve the flood capabilities of state or Town-owned transportation infrastructure.
 - b. Identify and replace undersized and failing culverts and drainages.
 - c. Request hydraulic studies, estimate costs, and seek funding for the replacement of all undersized culverts and drainages.
 - d. Rebuild/install culverts and bridges that are designed at a minimum to meet VTrans Hydraulics Manual and ANR Stream Alteration Standards.
 - e. Develop or update a capital improvement plan that addresses: the replacement of undersized culverts and structurally deficient bridges, the protection of vulnerable sections of public roads, the purchase of river corridor easements, and other measures to finance priority mitigation strategies for municipal infrastructure and facilities.
18. Continue on-going emergency preparedness and response planning.
19. Review and evaluate statewide river corridor information. Develop a River Corridor Overlay District and regulations that will protect erosion-prone and floodwater storage areas from additional development and encroachment to minimize losses from flooding and erosion.
20. Develop building and land development regulations that address post-disaster rebuilding.
21. Explore the feasibility and enroll in the “Community Rating System” as a tool to reduce flood insurance premiums.
22. Adopt the measures required for more favorable reimbursement under the Vermont Emergency Relief and Assistance Fund (ERAF):
 - a. Develop and adopt a Local Emergency Operations Plan (LEOP).
 - b. Develop and adopt a Local Hazard Mitigation Plan (LHMP).
 - c. Continue to meet the Vermont Road and Bridge standards. Participate in regional road foreman trainings and Transportation Advisory Committee

- meetings to stay abreast of flood resilience measures for the town's roads and bridges.
- d. Continue participation in NFIP. Update flood hazard area regulations to meet or exceed the minimum standards in the current Vermont flood hazard area regulation model.
 - e. Develop and adopt a River Corridor Protection Plan.
23. Use all available resources in developing hazard mitigation plans, emergency operations plan, and other flood resiliency documents to ensure all requirements and best possible measures are utilized, such as the Regional Planning Commission, or publications available through agencies like FEMA or the EPA.
 24. Assure that locations in which valuables are stored within flood-prone areas (e.g. town archives, library collections, etc.) are flood proofed.
 25. Adopt bylaws or ordinances to address the storage of unsecured objects in the floodplain. Engage local farmers in discussions about the mutual benefits of storing hay bales and other materials and equipment outside of the special flood hazard area and river corridor.
 26. Develop and maintain mutual aid agreements with neighboring communities.

4.14 Agricultural Lands Goals, Objectives, and Actions

Goal: Protect agricultural lands and practices to maintain agriculture as a viable economic activity.

Objective 1: Avoid development on prime agricultural soils, particularly those without limitations for farming uses such as hydric soils or barriers to agricultural uses.

Objective 2: Incorporate agriculture into economic development plans and projects.

Actions:

1. Maintain at least 2,000 acres in active farming through creative measures such as the purchase of agricultural easements in concert with Vermont Land Trust and the Farmland Access Program so as to avoid forcing farmers to bear a cost of preserving these lands while the community benefits.
2. Participate in and encourage planning for local food markets within the town and the region.

4.15 Earth Products Removal Goals, Objectives, and Actions

Statewide Goal #10 (24.V.S.A. § 4302): *To provide for the wise and efficient use of Vermont's natural resources and to facilitate the appropriate extraction of earth resources and the proper restoration and preservation of the aesthetic qualities of the area.*

Goal: Permit resource extraction activities only when it has been shown that there will be no

adverse impact on the Town and its residents.

Objective 1: No new earth resource extraction or processing operations, neither expansion of an existing operation, nor resumption of an inactive operation, shall be permitted until it has been demonstrated that no detrimental impacts from erosion, dust, impacts to surface and groundwater resources, impacts on area roads and traffic patterns and other potential impacts, will occur.

Objective 2: Avoid detrimental impacts of sand and gravel or other mining operations by monitoring and controlling the expansion of excavation projects over time.

Actions:

1. Amend the bylaws to assure that potential nuisances resulting from earth resources extraction be minimized by requiring activities to avoid or minimize the following:
 - a. The generation of harmful levels of dust, air pollution, or radioactive contamination of the air or water;
 - b. Any reduction in surface water quality because of siltation resulting from increased soil erosion;
 - c. Adverse impacts from the storage and disposal of waste materials, both solid and liquid;
 - d. Damage to the topography impairing future uses;
 - e. Increases in heavy truck traffic, leading to decreased highway safety, deterioration of highways and bridges, and increased municipal costs;
 - f. Any reduction in the value of surrounding properties.
2. Amend the bylaws to clearly show that applicants for resource extraction bear the burden of proof, based on a processing or extraction plan that no such impacts will occur. The proof should be presented to and accepted by the State Agency of Natural Resources and Pownal zoning boards and should encompass plans for the rehabilitation of the site after extraction or processing activities end with appropriate guarantees, such as bonding, to ensure the rehabilitation of disturbed area and reseeded at the owner's expense.
3. Amend the bylaws to limit the proportion of total area exposed at any one time.
4. Require that operators of sand and gravel extraction activities rehabilitate extraction sites at the conclusion of the operation or, in phases, periodically during the operation.

5.0. Land Use Plan

5.1. General Development Pattern of the Town

Most of Pownal is forested or low density residential, with agricultural lands in the

valley areas. There are three distinct village units: Pownal Center, North Pownal, and Pownal Village. Pownal Center is located near the intersection of Route 7 and Barber Pond Road and includes the Town Office. North Pownal is located along the Hoosic River and Route 346, and Pownal Village lies at the intersection of Routes 346 and 7, just north of the former Green Mountain Race Track. Both Pownal Village and North Pownal have considerable areas within the floodplain of the Hoosic River (Map 8). Since 2002, these three centers have been zoned Village District to encourage the dense and varied residential and commercial activities traditionally associated with vibrant Vermont villages. This mixed-use zoning, along with sewer service throughout the village centers, encourages compact development and discourages expansion into the surrounding rural and agricultural areas of Pownal.

Currently there are extensive stretches that are undeveloped and have scenic and natural resource values along the Routes 7 & 346 corridors that run outside these villages. Much of the residential growth in the town has occurred to the east of Pownal Center. However, considerable commercial development arose along Route 7 after the completion of the Green Mountain Race Track during the 1960s. There is some housing on the western side of the Hoosic River and in the areas near Mann and Mason Hill. Pownal also has seven mobile home parks.

The remainder of the town is characterized by farmland, open fields, and the backdrop of the Green Mountain and Taconic Ranges. In Pownal, the prevention of “sprawl” type development has been made difficult because of the tendency for growth to occur between the Villages. A pattern of random development can cause economic and environmental costs that are higher than necessary. Pownal still has a great deal of open land on the edges of the Town, a resource that helps maintain the bucolic character of its landscape. Should inappropriate development encroach upon these areas, Pownal’s rural quality will be diminished while incurring additional expense for municipal functions. Such development should be discouraged and tightly controlled.

Land-use designations and action items outlined below provide concrete guidance for Pownal to achieve its land-use vision of dense historic settlements and expansive natural surroundings.

5.2 Land Use Goals and Objectives

Statewide Land Use Goal #1²⁹ (24 V.S.A. § 4302): *To plan development so as to maintain the historic settlement pattern of compact village and urban centers separated by rural countryside.*

- *Intensive residential development should be encouraged primarily in areas related to community centers, and strip development along highways should be discouraged.*
- *Economic growth should be encouraged in locally designated growth areas, employed to revitalize existing village and urban centers, or both, and should be encouraged in growth centers designated under chapter 76A of this title.*

²⁹ All the goals in 24 V.S.A § 4302 support this section.

- *Public investments, including the construction or expansion of infrastructure, should reinforce the general character and planned growth patterns of the area.*
- *Development should be undertaken in accordance with smart growth principles as defined in subdivision 2791(13) of this title.*

To support the land use designations described in this plan, Pownal is adopting the following Land Use Goals:

Pownal Land Use Goal #1: Provide for a mix of residential, commercial, industrial and public uses to provide for economic development, a safe and efficient transportation system, and continued viability of natural resources that provide critical ecosystem services to the Town.

Pownal Land Use Goal #2: Promote development within the Village districts so as to avoid sprawl.

Objective 1: Strip development along Routes 7 and 346 outside of village and commercial zones should be avoided. Such development could undermine community character and the historic settlement patterns, promote inefficient use of land, and lead to traffic conflicts and safety concerns.

Pownal Land Use Goal #3: Promote visually attractive developments and uses to enhance property values.

Objective 1: Existing, natural vegetation should be retained, including underdeveloped land separating developed parcels.

Objective 2: Recreational uses, such as hiking, boating and bicycling, should be encouraged with connections to the village centers.

5.3 Land Use Designations

An important foundation to the Plan is the designation of future land-use planning districts that form the basis for implementing bylaws. Pownal's historic development patterns along with topographic conditions and natural resources support the following land use districts: Village, Rural Residential 1(RR1), Rural Residential 2(RR2), Commercial, Industrial, and Forest (Map 10).

5.3.1 Village District

The Village District represents compact settlements with a mix of uses with higher densities of use than surrounding areas. The minimum lot size in the Village area is 10,000 square feet except that the standards for some uses may result in a larger lot area. Installation of public wastewater treatment systems in the three Villages was completed in 2008 and is intended to attract compact infill development to these areas. Given existing low density of

development and infrastructure, these three areas have the capacity to support future growth. Specifically, the Villages centers shall:

- 1) Provide for more concentrated, high-density development;
- 2) Accommodate a mix of land uses including commercial, retail, public service, transit, and residential that are in close proximity, planned as a unified complementary whole, and are functionally integrated;
- 3) Provide a pedestrian-oriented circulation network that minimizes vehicular traffic and significantly reduces the amount of pavement for parking and driveways between buildings and streets;
- 4) Encourage the traditional town center pattern of appropriately scaled buildings facing onto a well-defined and active public street;
- 5) Promote innovative site planning to maximize uses, shared parking, and public open space and pedestrian amenities to create an aesthetically pleasing and socially active community center;
- 6) Facilitate and/or strongly encourage multi-story buildings within existing height guidelines.

In 2018, the Town applied for and received state designation for three village centers: Pownal Center, North Pownal, and Pownal Village (see Section 3.0). Promotion of the village centers will also advance the energy goals articulated in Section 8.0.

5.3.2 Rural Residential 1 (RR1)

The purpose of the Rural Residential 1 District is to maintain and preserve the character and scenic qualities of outlying areas while providing the opportunity for a limited mix of residential, commercial and public uses appropriate for medium-density development. The RR1 district is also intended to provide a transition area between the Village District and the Rural Residential District 2. The potential exists for including limited extensions of the municipal sewer system. The RR1 district encourages a less-concentrated settlement pattern with a minimum lot size of one unit/acre. With the exception of approved cluster subdivisions, each primary dwelling unit shall be located on a separate lot of at least one acre.

5.3.3 Rural Residential 2 (RR2)

A large portion of the Town is classified as Rural Residential 2. This district provides for a variety of uses including residential, non-residential and agricultural uses. The minimum lot size is 2 acres with larger lots for some uses with their own standards. Many of Pownal's biological and natural areas (Maps 7, 9 and 10) are located in this area with policies for their protection. The purpose of the Rural Residential District 2 is to maintain and preserve the agricultural character and scenic qualities of outlying areas while providing the opportunity for lower-density residential and non-residential development subject to general and specific conditions. Permitted residential densities are at a minimum of one primary dwelling unit per

two acres. With the exception of approved cluster subdivisions, each primary dwelling unit shall be located on a separate lot of at least two acres.

5.3.4 Commercial (C)

The purpose of the Commercial District is to provide designated areas for economically valuable commercial activity that will benefit the residents of the Town, and which will foster employment opportunities.

5.3.6 Industrial (I)

The purpose of the Industrial District is to provide designated areas for economically beneficial and environmentally responsible industrial development in order to foster employment opportunities.

5.3.6 Commercial/Industrial

This is a new, proposed district where commercial or industrial uses, or a mixture of those uses, could be permitted.

5.3.7 Forest (F)

The purpose of the Forest District is to preserve tracts suitable for perpetuating forest resources and to maintain a high quality of the watershed and water supply. Commercial forestry, recreational uses, and rustic camps are appropriate uses in the Forest District, while year-round living is not allowed. The Forest Districts depicted on the land-use map (2) are at higher elevations in the Taconic and Green Mt. Ranges. As described in Section 4.0, the town has goals to protect large, continuous forest blocks and connections between those blocks, and limiting development within the Forest District is intended to achieve those goals.

5.3.8 Natural Resources

Pownal contains natural areas that have significant geologic features and unusual or important plant and animal qualities that make them unsuitable for development because of their local, statewide, national, or global significance. Included are regions of steep slopes, rare and endangered species, and significant wildlife habitat. These natural features are critical to the support of human, animal, and plant populations in the Town. Land uses and development in any district must be planned and designed to be compatible with the surrounding geographic characteristics of the landscape, to be harmonious with wildlife habitat and the species that depend on this habitat and should recognize and protect the full range of habitats and species in the Town.

Many of these natural resources are critical to providing flood protection, water resources, and protecting the health safety and welfare. These include special flood hazard areas and river corridors as well as wetlands and surface and groundwater resources.

5.4 Additional Considerations

1. The Planning Commission should periodically review the land use districts and the town bylaws to make sure they continue to support the protection of natural resources, promotion of economic development, maintenance of a safe and effective transportation system, and provision of public services and facilities.
2. Areas with valuable scenic resources should be zoned to discourage development and to preserve open landscapes along travel corridors. The following locations have been identified as possessing prominent scenic vistas: Route 7 North and South Lanes from Ladd Road to Barber Pond Road, Route 346 from the Mack Molding Plant to the sewer pump station in North Pownal, Route 346 from Tubs Road to the New York State Line. The Planning Commission should identify any additional scenic resources (view sheds, outstanding landscape character, etc.) along the Route 7 and Route 346 corridors and employ means to protect those assets where possible.
3. Development within the wetlands and floodplains, areas of steep slope (>20%), and where rare species and natural communities exist should be discouraged. Where such development is unavoidable, buffers and other appropriate measures to protect natural resources should be incorporated within site plans by the Development Review Board.
4. One form of uncontrolled or undesirable growth that can occur both with and without sewer service is strip development along a highway corridor, particularly the Route 7 and Route 346 corridors. Pownal's goal to promote development within the Village Districts and discourage sprawl and strip development patterns is stressed by these two high-volume traffic corridors that pass through the Villages. These corridor areas should be delineated as a specific planning area and guidelines adopted to promote appropriate conservation practices within these sections of the corridor.

6.0. Transportation

A safe, convenient, and economical transportation system is essential for access to residential and commercial properties, the provision of emergency services, and the promotion of economic development. The primary mode of transportation in Pownal is the road and bridge system serving public and private vehicles. In addition, a major railroad line passes through town, and Routes 7 and 346 are used by commercial trucking and bus services. The Albany International Airport is the nearest major airport and the Rensselaer Train Station provides Amtrak Services. There are smaller airports in Bennington, and in the towns of North Adams and Pittsfield, Massachusetts.

Pedestrian pathways and bicycle usage are also of critical importance for both residents and visitors to Pownal. Existing sidewalks and trails provide access to schools and parks and have the potential to be integrated with larger, regional trail systems. Pownal's transportation

networks pass by the rolling farmland and dramatic mountain ridges that make the Town one of the most scenic locales in Bennington County.

6.1 Highway Classification and Mileage

Highways within Pownal can be classified under one of the following categories based on Title 19 of the Vermont Statutes Annotated, Section 302 (Vermont State Legislature, 2017). These are shown on Map 11 and listed in Table 16.

Table 16. Roads by type in Pownal. (Vermont Agency of Transportation, 2015)		
Type of Road	Number of Miles	Notes
U.S. Highway (US-7)	7.988	A total of 12.616 miles of state-maintained roads
State Highway (VT-346)	4.628	
Town Class 2	11.85	A total of 71.9 miles of town-maintained roads
Town Class 3	51.98	
Town Class 4	8.07	
Private Roads (estimated)	16.121	Private roads
Legal Trail (estimated)	0.096	

US Highways and State Roads: U.S. 7 is on the National Highway System and is a “principal arterial” highway corridor along the western side of VT. VT 346 is a “major collector” highway linking U.S. 7, NY 22, and secondary roads in Pownal.

Class 1 Highways: These highways form an extension of the state highway route and carry a state highway route number. These are designated by the state; there are no Class 1 Highways in Pownal.

Class 2 Highways: Class 2 Town Highways are selected as the most important highways in each town. As far as practicable they shall be selected with the purposes of securing trunk lines of improved highways from town to town and to places which by their nature have more than normal amounts of traffic.

Class 3 Highways: Class 3 Town Highways are all traveled town highways other than class 1 or 2 highways. The Select Board, following consultation with a representative of the Vermont Agency of Transportation, shall determine which highways are Class 3 Town Highways. The minimum standards for Class 3 Highways are a highway negotiable under normal conditions all seasons of the year by a standard manufactured pleasure car. This would include but not be limited to sufficient surface and base conditions, adequate drainage, and sufficient width capable to provide winter maintenance. A highway not meeting these standards may be reclassified as provisional Class 3 Highway if within five years of the determination, it will meet all Class 3 Highway standards.

Class 4 Highways: Class 4 Town Highways are all other Town highways. The Select Board shall

determine what highways are Class 4 Highways.

Town Trails: These are unmaintained Town rights-of-way where public access is preserved along a corridor. A small section of Wood Road in North Pownal is designated as a legal trail.

6.2 Bridges and Culverts

Data from the Agency of Transportation indicates there are 534 culverts within the town of Pownal. Of the culverts, 342 were ranked in good or excellent condition, 103 as fair and 86 as poor, critical or in urgent condition with three unknown. Data from the Bennington County Regional Commission indicates there are 22 bridges in Pownal. Three of these bridges, on Dean Road, Main Street, and Route 346, cross the Hoosic River. There are also culverts below the Pan Am Railways line and serving the various private roads in the town.

Culvert replacement and maintenance is undertaken annually. The proper sizing of culverts using hydraulic analyses can assure that sizing will accommodate design storms making the culverts more resilient to storm events. This will lower the costs of maintenance as fewer post-storm replacements will be required.

6.3 Stormwater Management

The Vermont Clean Water Act, Vermont Act 64/H.35 and the Lake Champlain Phase 1 total maximum daily load (TMDL)³⁰ require that municipalities reduce sedimentation runoff from their road systems over a twenty-year period following attainment of stormwater permits between 2018 to 2021 (Vermont Agency of Natural Resources, 2017b). Towns are required to develop road stormwater management plans in the following steps:

1. Identify sections of roads connected to surface waters through ditches, culverts, or other drainage structures;
2. Inventory connected portions of the road network to determine if these sections meet the standards being developed by the Vermont Agency of Natural Resources;
3. Develop a long-term plan to bring all connected sections up to statewide design standards.

6.4 Potential Roadway Hazards

Rockfall hazards, or areas where steep rock outcrops could break off, dropping rocks onto roads, have been identified on US 7 and Vermont Route 346 in Pownal (Eliason and Springston, 2007). The categories in that report are:

³⁰ This is a regulatory term under the Clean Water Act identifying the maximum amount of a pollutant that a body of water can receive and still meet water quality standards.

- A (High) = Rockfall is expected to occur and reach roadway;
- B+ (Significant) = Rockfall is likely to occur and reach roadway;
- B (Elevated) = Rockfall is possible at this location and may reach roadway;
- B- (Moderate) = Rockfall is unlikely to occur, however there is a slight chance if rockfalls do occur rock may reach roadway;
- C (Low) = Rockfall potential is not likely to occur.

A total of nineteen rock cuts were identified in Pownal. Three cuts on US 7 were categorized as B, three as B- and eight as C. One on 346 was categorized as B+, one as B and three as B-. These could present hazards to traffic, and significant rockfalls might block either of those roads.

Pownal has a few areas of high to moderate landslide potential. A section of Maple Grove Road and of Overlook Road are near such areas (Map 12). In addition, the Hart gravel pit periodically sends material across Route 7 during storm events creating a hazard along that road.

6.5 Transportation Goals, Objectives, and Actions

Statewide Transportation Goal #4 (24 V.S.A. § 4302): *To provide for safe, convenient, economic, and energy efficient transportation systems that respect the integrity of the natural environment, including public transit options and paths for pedestrians and bicyclers. Highways, air, rail, and other means of transportation should be mutually supportive, balanced, and integrated.*

Pownal Transportation Goal 1: Roads, pedestrian pathways, bicycle paths and other parts of the transportation system should provide safe transportation system to serve vehicles, bicycles and pedestrians that is appropriate to the Town's present and expected growth.

Pownal Transportation Goal 2: Pownal should maintain and upgrade the existing road network to the level necessary for operation in an economically and environmentally sound way and ensure that appropriate road, culvert, and bridge standards are adopted to guide these upgrades, enhance water quality, increase flood resiliency, and allow for aquatic passage and terrestrial animal movement.

Objective 1: All new road construction should be consistent with limitations imposed by topographical conditions, natural areas, areas that have special resource value, while not further burdening municipal or emergency services.

Objective 2: All new roads should meet town and state design specifications and state stormwater management standards.

Actions:

1. The Town should maintain the existing public road network in a safe and adequate

- condition through annual maintenance and capital infrastructure planning.
2. To preserve the visual quality of the most scenic town roads while maintaining a high level of safety and function, the Town should identify its scenic roads, designate and map them, and maintain them in accordance with authorized by the Scenic Highway Law of 1977. For example, U.S. Route 7 is designated the Ethan Allen Scenic Byway.
 3. The necessary inventory of roads connected to surface waters should be completed in accordance with the Vermont Department of Environmental Conservation Municipal Roads Program.
 4. Over the period of the required stormwater permit process, the town should bring roads connected to surface waters up to the standards developed by VT ANR to reduce sediment transport to these surface waters.
 5. The results of studies and recommendations for Tubbs Brook, Ladd Brook and the Hoosick River, which identified sources of sediment along the main stem of the Hoosick and portions of Tubbs Brook and Ladd Brook, should be used to designate and implement remediation projects.
 6. Culvert replacements should incorporate concerns for aquatic organism passage in their design and construction.
 7. Road construction and maintenance should avoid the introduction or spread of invasive species along roadsides.
 8. The Planning Commission should map and describe public recreational trails used throughout the town and provide that information to the public.
 9. At the time of new road construction, pedestrian pathways and bicycle routes should be incorporated into street design wherever possible, particularly within the growth centers. (See VTrans "Complete Streets Guidance" document, March 2012).
 10. The Planning Commission and the Development Review Board should review proposed road extensions that would increase local spending on road operations and maintenance with the Road Foreman and the Select Board prior to approval of projects requiring such extensions.
 11. The Town should incorporate various means of traffic calming to reduce vehicular speed so as to encourage pedestrian and bicycle use within the village areas.
 12. To avoid unnecessary expenses, the Town shall strictly enforce the Selectmen's resolution of May 15, 1964 requiring individual property owners along town streets or roads to install driveway culverts and obtain driveway permits. The Zoning Administrator shall direct applicants for a new dwelling to the Road Foreman in order to obtain such permits.
 13. Along the Route 7 and 346 corridors, the bylaws should be revised to:
 - Encourage shared access driveways and roads, shared parking and other access management principles;
 - Promote sign management and sign ordinance revisions to control size, lighting placement of on-premise commercial signs;
 - Work with Vermont Agency of Transportation on traffic control and traffic flow measures;
 - Promote bike lanes, signage and safe walking conditions;

- Review proposed developments for traffic impacts which may require applicants to complete traffic impact assessments for proposed projects.

14. Support the use of rail for both freight and passenger service.

7.0 Community Facilities, Services, and Utilities

Pownal has a diversity of community facilities, shown on Map 13.

7.1 Water Supply

The Vermont Department of Environmental Conservation oversees three types of public water systems:

- **Public Community water system (PCWS)** means a public water system which serves at least fifteen (15) service connections used by year-round residents or regularly serves at least 25 year-round residents.
- **Public Non-Transient Non-Community water system (NTNC)** means a public water system that regularly serves at least 25 or more of the same persons daily for more than six months per year. Examples: schools, factories, office buildings.
- **Public Transient Non-Community water system (TNC)** means a public water system that serves at least 25 or more different people for more than sixty days of the year. Examples: restaurants, motels, campgrounds.

Using the Vermont Geoportal, we identified the following public sources:

Table 17. Public water supplies in Pownal. (Vermont Center for Geographic Information, 2016)		
System	Type	System Status ³¹
Alta Gardens Estates	PCWS	Active
America Legion Post 90	TNC	Active
Bennington Water Department	PCWS	Active – Well Inactive
Evergreen MHP	PCWS	Active
Good Old Days (out of business)	TNC	Inactive
Green Mountain Race Track	TNC	Inactive
Ladd Brook Inn	TNC	Two active systems – One well inactive
Lampman Water System	PCWS	Two active systems – One well inactive
Oak Hill Children’s School	NTNC	Active
Pine Hollow Campground	TNC	Active
Pownal Elementary School	NTNC	Active
Pownal Fire District 2	PCWS	Active
Pownal Primary Care	TNC	Active

³¹ Inactive systems may still have a well or other water source.

Table 17. Public water supplies in Pownal. (Vermont Center for Geographic Information, 2016)		
System	Type	System Status ³¹
*Pownal Tannery Reservoir	Brook impoundment	Inactive; the reservoir no longer exists
Royal Pine Villa	PCWS	Three active systems – One well inactive
Shady Acres Campground	Non-public	Inactive
Stewarts Pownal	TNC	Active

Most of the town is served by private wells, of which the database shows 644 total private wells.

Map 13 shows the locations of these public systems as well as both surface and groundwater protection areas. These are areas intended to buffer lands likely to contribute to surface and groundwater supplies. Public systems develop source protection plans and work with landowners within the protection areas to support water quality protection. At the time of drafting of this plan, the well for Pownal Fire District 2 was been found to be contaminated, and long-term solutions are being developed.

7.2 Wastewater Disposal Collection and Treatment

The town complete feasibility studies for a wastewater treatment plant in 1999, began constructing lines in 2004 and completed construction of the treatment plant in 2006. The village areas of Pownal are served by the Pownal Wastewater Treatment Facility, which discharges treated effluent into the Hoosic River. The plant has a capacity of 0.26 million gallons/day. Operating standards are set by the Vermont Department of Environmental Conservation and the U.S. Environmental Protection Agency.

In order to maintain the rural character of Pownal, to limit the potential for unwanted growth in outlying areas, and to encourage development to occur within the growth centers, the Town currently prohibits wastewater connections to the municipal sewers located outside of the sewer service areas. Therefore, residential and non-residential properties which are located outside of the sewer service areas remain on private septic systems.

7.3 Solid Waste Disposal

Pownal is a member of the Bennington County Solid Waste Alliance (BCSWA). The Alliance adopted a plan that is being implemented by all 13-member towns, which was approved by the Vermont Agency of Natural Resources in December of 2015 (Bennington County Solid Waste Alliance, 2015). The Alliance provides outreach and technical assistance to member towns, businesses, schools and institutions to reduce the amount of material sent to landfills and incinerators and to increase the amount of material recycled. Pownal adopted a pay-as-you-throw ordinance in 2015 requiring haulers to charge for waste pickup based on volume or weight as opposed to a fixed fee.

The town operates a transfer station on Maple Grove Rd. The transfer station accepts recycling, construction and demolition debris, electronic waste and municipal solid waste from residents who bring those materials to the station. TAM, Inc. operates a private transfer station and recycling facility off of Orchard St. and accepts material from towns in Vermont, Massachusetts and New York and processes that material which is sent to facilities elsewhere.

Both the Pownal Landfill, located at the transfer station, and the Pownal Tannery Landfill, located near the wastewater treatment plant, are closed landfills requiring monitoring. The Tannery is an EPA Superfund site.

7.4 Emergency Services and Public Safety

Law enforcement is provided through a contract with the Bennington County Sheriff. The Vermont State Police also patrol periodically. Pownal is served by two fire departments: Pownal Valley Fire Department and Pownal Fire Protection Association. The Pownal Valley Fire Department makes their building available for many community organizations, such as 4H, Senior Groups, Boys and Girl Scouts, and Athletic groups. The Pownal Rescue Squad provides emergency medical support, and the Squad's building is used for meetings and gatherings.

The town has a primary emergency operations center at the Pownal Fire Protection Association on Route 346 and secondary centers at the Pownal Valley Fire Department and at the Pownal Elementary School. The town annually revises and adopts a Local Emergency Operations Plan (LEOP), which lists resources, vulnerable populations and areas, critical facilities and points of contact in the event of an emergency. The Town Emergency Management Director is responsible for coordinating emergency operations with the Bennington County Regional Commission and with state agencies. The Pownal Fire Department is a Red Cross certified shelter and both Pownal Valley and Pownal Elementary can serve as shelters if needed. All have backup generators can serve as warming shelters.

7.5 Town Highway Department

The highway department has a garage and salt storage area on Maple Grove Rd. The department is responsible for maintaining the nearly 72 miles of town roads as well as several town facilities.

7.6 The Solomon Wright Public Library

The Solomon Wright Public Library celebrated the 50th anniversary in August of 2016. The library building is approximately 3,400 square foot in area and contains over 15,000 items in the collection. The collection includes books, magazines and various media. The library provides access to a number of databases and is one of 43 hub libraries in Vermont with fiber

optic internet. This provides residents with high quality 24/7 access to digital collections and resources.

The library also has the Lucy Wright Case Reading room which is available for organizations to use for meetings. While the library does receive funds from the town, a great deal of funding, including many major capital improvements, are from private donations.

7.7 Health Care Facilities

Southwestern Vermont Medical Center opened the Pownal Campus in 2016 which provides routine and acute medical care, management of chronic conditions, and medical testing. A physician is on call for emergencies 24 hours a day. SVMC is located in Bennington approximately 2.5 miles from the border of Pownal and Bennington. Other health care services include:

- The Bennington Area Visiting Nurse Association and Hospice provides home health care, hospice and community health services in the Bennington Area.
- The Bennington Free Clinic, a program of Greater Bennington Interfaith Community Services provides primary care for adults who do not have or can't afford health insurance. Residents of Pownal have been served by this program.
- Bennington Project Independence provides a number of services for seniors and young adults and families with disabilities.
- Project Against Violent Encounters (PAVE) provides support for victims of domestic abuse and sexual assault.
- Southwestern Vermont Council on Aging provides meals and other support for seniors.
- The Vermont Center for Independent Living provides support and instruction for people with disabilities to help them live independently. This includes in-home programs and Meals on Wheels.

7.8 Outside Organizations Serving Pownal

The Bennington County Conservation District seeks to promote rural livelihoods and natural resources in southwester Vermont. The district has worked with the Bennington County Sustainable Forest Consortium to promote forestry, has treated 30 acres of invasive species in the Batten Kill watershed and has assisted with Better Roads program grant preparation, including for the town of Pownal.

The Green Mountain RSVP Volunteer Center matches people over 55 with volunteer opportunities in the community including mentors at Pownal Elementary and the Pownal Food Pantry.

7.9 Community Facilities Goals, Objectives and Actions

Statewide Goal #12 (24 V.S.A. § 4302): To plan for, finance and provide an efficient system of public facilities and services to meet future needs.

- Public facilities and services should include fire and police protection, emergency medical services, schools, water supply, and sewage and solid waste disposal.
- The rate of growth should not exceed the ability of the community and the area to provide facilities and services.

Pownal Facilities Goal 1: Town operated and managed facilities and services, should be sufficient to maintain town infrastructure, including roads, the wastewater treatment plant and the transfer station.

Pownal Facilities Goal 2: Pownal should continue to participate in and support public and private organizations that work to provide health and social services and natural resource protection.

Objective 1: Pownal should financially support service organizations, emergency services, the library and other key services through direct financial support, through outreach to residents and businesses, and by seeking state, federal and foundation grants and funding.

Actions:

1. The Planning Commission and the Select Board should develop bylaws for the protection of groundwater and surface water protection areas to assure a high level of water quality for public water supplies.
2. The Town should promote recycling, backyard composting and other means for residents and businesses to reduce waste sent to landfills.
3. The Town should promote household hazardous waste pickup days for residents and businesses as well as organize Green-up Day cleanups.
4. The Town should continue to provide direct financial support to the Library and support library fundraising efforts.
5. The Town should support both the Pownal Fire Protection Association, the Pownal Valley Fire Department and the Pownal Rescue Squad in researching and securing grants for equipment and training.
6. The Town Emergency Management Director should participate in the quarterly meetings of Local Emergency Planning Committee 7 and trainings offered by the Vermont Department of Homeland Security and Emergency Management.
7. Supplies, stocks, cots and other materials should be maintained in adequate supply at town shelters.
8. The Town should build or acquire a building that can serve as a town hall, community meeting center and location for volunteers and organizations to use to assist community residents and businesses in finding resources.

In addition, goals, objectives and actions for the Transportation System can be found in Section 6.0.

7.10 Education

7.10.1 Educational Resources

Pownal is part of the Southwestern Vermont Student Union. Pownal Elementary School is located in the town and has approximately 246 students and 50 faculty. There are seven child care facilities including Bennington County Head Start, located at the elementary school, Oak Hill School on Schoolhouse Road and five operated by individuals. The Sunrise Family Resource Center provides training to childcare facilities as well as referral assistance for families and administration of the Vermont Child Care Financial Assistance Program.

7.10.2 Opportunities for Adults

The Pownal Library offers General Education Development (GED) courses and there are numerous opportunities for adult education and training in nearby communities. In Bennington, the Southwest Vermont Career Development Center offers both in-class and online training in a variety of topics including building trades, automotive repair, manufacturing technology, business management, and the medical professions. The Community College of Vermont also offers programs that can prepare students for careers in accounting, nursing or others as well as courses for college credit in preparation for a four-year degree. The Tutorial Center can provide tutoring for K-12 students, assistance with adult literacy, and employment readiness training.

There are also opportunities for adults to study at Southern Vermont College and Williams College as well as more distant schools in the Albany Capital District and elsewhere in New England.

7.11 Education Goals, Objectives and Actions

Statewide Goal #3 (24 V.S.A. § 4302): To broaden access to educational and vocational training opportunities sufficient to ensure the full realization of the abilities of all Vermonters.

Statewide Goal #13: To ensure the availability of safe and affordable child care and to integrate child care issues into the planning process, including child care financing, infrastructure, business assistance for child care providers, and child care work force development.

Pownal Education Goal 1: Support the early child care facilities within the Town

Pownal Education Goal 2: Encourage participation by adults within Pownal in educational and vocational opportunities

Objective 1: Information on educational opportunities for adults should be easily accessible to Pownal residents.

Objective 2: Child care facilities should operate according to state standards and have up to date emergency operations plans.

Actions:

1. The Town should support the GED class held at the library.
2. The Town should post information on adult education opportunities on the town website
3. The town should encourage informational meetings within the town by adult educational facilities to reach the local population.
4. The Emergency Management Director should work with child care facilities to assure they have emergency operations plans.

7.12 Recreation

Pownal has much to offer for public recreation including many years of service by volunteers to keep children busy and engaged during the year. Map 14 shows open space lands.

7.12.1 Pownal Recreation Commission

The Pownal Recreation Commission provides a four-week summer program for Pownal residents from pre-kindergarten to the sixth grade. The program is held at the Pownal Elementary School. Transportation is provided. The program provides supervised activities in a variety of recreational and educational activities.

7.12.2 Little League

Pownal Little League offers t-Ball, Coach Pitch, and Cal Ripken. The teams are supported by local businesses. Playing fields are well kept and maintained by the hard work of community volunteers. Playing fields are located at:

- The North Pownal ball field;
- The Pownal Elementary School field;
- The field at the north entrance to Green Mountain Race Track

There is a MYAA (Mount Anthony Youth Athletic Associations) offering football, soccer, basketball and wrestling in Bennington.

7.12.3 Waterways: Pownal's river and streams offer some of the best fishing places in the area. Large fish have been caught in the river. In addition to fish other wildlife travels the river, such as eagles and blue herons.

- Hoosic River; The Hoosic River Watershed Associations (HOORWA) has worked toward the goal of making the making the Hoosic a fishable, swimmable river. There is access downstream of the Tannery dam for canoes or kayaks.
- Barber Pond, South Stream Pond, and Thompson's pond are privately owned; however, they offer some great fishing, canoeing and kayaking and wildlife viewing.

7.12.4 Hiking Trails: The Green Mountain National Forest, Taconic Crest trails are available to Pownal residents and visitors alike. Route 7 and Route 346 are great for biking. The Nature Conservancy owns the rock quarry on Quarry Hill in North Pownal with public access from Route 346.

7.12.5 Other recreation: A fishing Derby is held on the first Saturday of May on Mount Anthony Road (White's Pond) with a good time and great prizes with lots of trophies and food for all. Pownal is fortunate to have two well-run 4 H Clubs:

- The Green Mountain Gallopers;
- Offers children training in horse care, riding and other equine skills.
- The Pownal Valley Sharp Shooters;

These clubs emphasize safety, training in all aspects of shooting and fire arms care, in several disciplines including archery.

Pownal Center Park is used by the local kids for skateboarding. The Pownal Valley Fair is held on the last Saturday of the month of July and offers a wide variety of activities for the kids' games, tractor pulls, antique cars, bands, crafters, wood splitting, horseshoe pitching and the best fireworks in Pownal.

7.13 Recreation Goals, Objectives and Actions

Statewide Goal #8: To maintain and enhance recreational opportunities for Vermont residents and visitors.

- Growth should not significantly diminish the value and availability of outdoor recreational activities.
- Public access to noncommercial outdoor recreational opportunities, such as lakes and hiking trails, should be identified, provided, and protected wherever appropriate.

Pownal Recreation Goal: The Town should provide improve recreation opportunities for its citizens.

Actions (see also Section 3.0):

1. By 2020, the Planning Commission should complete a recreation plan identifying trails, boating, bicycling and other access points and possible signage, etc.

2. The Town should work with landowners to protect lands adjacent to streams and water bodies which serve a recreational.
3. Any community or economic development strategies should incorporate the need for future recreational use opportunities and facilities (see Section 3.0).
4. New recreational facilities should be located conveniently to all members of the community.
5. Pownal should seek funding (e.g., a state transportation grant) to plan and complete a hiking/biking trail on the abandoned railroad bed in North Pownal.
6. The Town should provide parking areas and signage for recreational trails, river access and other recreational amenities.

8.0 Energy

Most of the world is highly dependent on fossil fuels, including oil, coal and gas to supply heat, electricity and fuel for transportation. These types of fuels are labeled “non-renewable” as the supply is finite and depends on how much of these materials can be extracted from the ground or beneath the sea. Other forms of energy from the sun (solar), wind, hydroelectric, and geothermal or labeled as “renewable” as the supplies come from the sun, winds, water power and subsurface heat that are not limited by what can be extracted. Fossil fuels produce greenhouse gasses such as carbon dioxide and methane. Since fossil fuel supplies are dependent on extraction, prices may fluctuate, and that fluctuation can be exacerbated by regional and global conflicts over resources.

Both types of energy require infrastructure such as power lines, substations and other distribution systems. Wind and solar generate power as those resources are available, so storage is needed to provide constant power sources.

Renewable energy can help both to maintain a clean environment and to provide local sources of energy to the community. Potential renewable resources in Pownal include:

- Hydroelectric energy from the Hoosic River;
- Residential, commercial and utility scale wind turbines to provide electricity for residential and commercial uses;
- Solar energy to heat water and generate electricity from photovoltaic cells; and,
- Wood for other biomass powered boilers for public buildings and local geothermal energy to supplement heating and cooling systems in residential and public buildings.

The Town recognizes that renewable energy sources should have a role in Pownal’s energy future, but the development and use of those resources may have negative impacts on the town’s natural, cultural, and scenic resources, which must be protected.

8.1 Vermont Energy Policy

The energy policy of the State of Vermont, as codified in 30 V.S.A. § 202a (1), states:

“It is the general policy of the State of Vermont:

(1) To assure, to the greatest extent practicable, that Vermont can meet its energy service needs in a manner that is adequate, reliable, secure, and sustainable; that assures affordability and encourages the State's economic vitality, the efficient use of energy resources, and cost-effective demand-side management; and that is environmentally sound.

(2) To identify and evaluate, on an ongoing basis, resources that will meet Vermont's energy service needs in accordance with the principles of least-cost integrated planning; including efficiency, conservation and load management alternatives, wise use of renewable resources, and environmentally sound energy supply.”

Providing energy that is reliable and resilient in terms of both supply and cost is essential to the Vermont economy. At the same time, the sources of energy use can be realigned from fossil fuels to solar, wind, hydropower, geothermal, biomass and other sources not derived from fossil fuels to mitigate changes in the climate resulting from greenhouse gas emissions. The Vermont Comprehensive Energy Plan (2016) established the following set of goals:

- Reduce total energy consumption per capita by 15% by 2025, and by more than one third by 2050.
- Meet 25% of the remaining energy need from renewable sources by 2025, 40% by 2035, and 90% by 2050.
- Achieve three end-use sector goals for 2025: 10% renewable sources for transportation, 30% renewable sources for buildings, and 67% renewable sources of electric power (Vermont Department of Public Service, 2016).

In 2016, the Vermont State Legislature passed Act 174, the Energy Development Improvement Act, which amended several parts of Chapters 24 and 30 of the Vermont Statutes Annotated or V.S.A. Among the changes relevant to regional and municipal plans were:

1. Amendments to 24 V.S.A. § 4302(c) (7) to state a that the goal is to make efficient use of energy, provide for renewable energy and reduce emissions of greenhouse gasses;
2. Amendments to 24 V.S.A. § 4345a to provide for a required duty of regional planning commissions to undertake studies and make recommendations on the conservation of energy and development of energy resources;
3. Amendments to 24 V.S.A § 4348 to add requirements for regional energy plans to include conservation and efficient use of energy, development and identification of areas for renewable energy resources and areas unsuitable for such resources.

4. Requirements for both regional and municipal plans that optionally decide to seek a determination of energy compliance by meeting standards developed by the Department of Public Services (DPS).

As stated in 30 V.S.A. § 248, the Public Utility Commission reviews proposals for new natural gas and electric generating facilities and must issue a “certificate of public good” prior to any development of such facilities. Municipal governments may not regulate electric generation or transmission facilities except for those operated solely for on-site energy consumption.³² A municipal government may appear as a party during public hearings the consideration of applications for these facilities.

Regions and municipalities that receive a “Determination of Energy Compliance” receive “substantial deference” under Section 248 of Title 30, by which the Public Service Board reviews and approves or denies applications for a Certificate of Public Good for the construction of electric transmission lines, electric generation facilities and certain gas pipelines in Vermont. The following sections of this plan were developed using the Guidance for Municipal Enhanced Energy Standards developed by the Vermont Department of Public Service (VT DPS 2017) which advises that plans should include:

- An analysis of current energy use and targets of future targets of energy use across sectors aligned with the state energy goals.
- Pathways or implementation actions to reach those targets.
- Maps to guide renewable energy development.

The Pownal Town Plan largely depends on information provided within the Bennington County Regional Energy Plan (BCRC, 2017) and supplemental information provided by the Bennington County Regional Commission.

8.2 Types of Energy Use

Energy is consumed by transportation, commercial enterprises, residences and industry. Transportation consumes more energy resources than each of the others (BCRC 2017). The following tables summarize targets for energy demand from different sources from 2010 projected to 2050 for the Bennington Region and for the Town of Pownal. Estimates were originally completed for the region using the Long-range Energy Alternatives Planning or LEAP system to estimate future energy supply and demand (BCRC, 2017). The estimates for each town, including Pownal, were calculated based on the proportion of the town population within the region. These assume the goals in the Vermont Comprehensive Energy Plan are achieved, so the time frames in the following tables track the years 2025, 2035 and 2050. These numbers represent targets for energy sources from 2025 to 2050 and not necessarily projections for

³² Towns may adopt ordinances requiring screening of solar installations provided those requirements are the same as would apply to other commercial uses.

energy demand from those sources. The 2010 numbers represent estimations of current energy use.

Data for the following tables was developed by Jim Sullivan, Director of the Bennington County Regional Commission (Sullivan, 2017). Tables 18 and 19 show the total energy demand for the Bennington Region and for Pownal from 2010 to 2050 for various fuel types. Assuming an increase in electricity as more electric vehicles replace gas and diesel driven vehicles and as residential, commercial and industrial energy is provided by electricity and biomass for heating along with a reduction in energy use through extensive conservation efforts, there should be a decrease in the use of gas and oil.

Table 18. Total energy demand by fuel type in standard fuel measurement units from 2020 projected to 2050 for the Bennington Region				
Fuels	2010	2025	2035	2050
Electricity (KWH) ³³	308,909,730 (15%)	371,922,626 (23%)	411,781,946 (30%)	463,657,679 (45%)
Gasoline (gallons)	15,838,344 (28%)	9,667,453 (21%)	5,913,425 (15%)	232,550 (1%)
Kerosene (gallons)	540,741 (1%)	370,370 (1%)	222,222 (1%)	- (0%)
Diesel (gallons)	4,339,577 (9%)	2,667,713 (7%)	1,620,981 (5%)	50,883 (0%)
Residual Fuel Oil (gallons)	2,912,686 (6%)	2,131,071 (6%)	1,596,633 (5%)	788,296 (3%)
LPG (gallons)	5,723,524 (7%)	4,484,411 (7%)	3,386,910 (6%)	1,899,974 (5%)
Oil (gallons)	7,734,188 (15%)	5,175,509 (13%)	3,082,045 (9%)	188,993 (1%)
Wood (tons)	5,750 (13%)	5,506 (16%)	5,306 (18%)	5,144 (24%)
Ethanol (gallons)	3,057,346 (4%)	2,608,778 (4%)	2,396,298 (4%)	2,065,774 (5%)
Solar Thermal (Th MMBtu) ³⁴	- (0%)	3 (<1%)	5 (<1%)	8 (<1%)
Coal (short tons)	3,592 (1%)	2,258 (1%)	1,334 (1%)	- (0%)
CNG (pounds)	644,841 (<1%)	694,444 (<1%)	694,444 (<1%)	744,048 (<1%)
Biodiesel (gallons)	47,024 <1%)	1,598,809 (4%)	2,641,169 (7%)	4,239,978 (16%)

³³ KWH stands for kilowatt hours

³⁴ MMBtu stands for one million BTUs or British Thermal Units, a standard unit of heat

Table 19. Total energy demand by fuel units from 2020 projected to 2050 for the town of Pownal in standard fuel measurement units				
Fuels	2010	2025	2035	2050
Electricity (KWH)	30,582,063	36,820,340	40,766,413	45,902,110
Gasoline (gallons)	1,567,996	957,078	585,429	23,022
Kerosene (gallons)	53,533	36,667	22,000	-
Diesel (gallons)	429,618	264,104	160,477	5,037
Residual Fuel Oil (gallons)	288,356	210,976	158,067	78,041
LPG (gallons)	566,629	443,957	335,304	188,097
Oil (gallons)	765,685	512,375	305,122	18,710
Wood (tons)	569	545	525	509
Ethanol (gallons)	302,677	258,269	237,234	204,512
Solar Thermal (Th MMBtu)	-	0	0	1
Coal (short tons)	356	223	132	-
CNG (pounds)	63,839	68,750	68,750	73,661
Biodiesel (gallons)	4,655	158,282	261,476	419,758

Two of the largest sectors for energy use are residences and transportation. Tables 20 and 21 summarize projected energy uses for the region and for Pownal respectively for transportation.³⁵ Most employees (84%) commuted alone and the average commute time was 23 minutes (BCRC 2017). As discussed above, a dramatic increase in the use of electric vehicles will result in an equally dramatic increase in electricity demand and decrease in the use of oil and gas.

The next tables (22 and 23) show residential energy use targets for the region and for Pownal. The targets are based on significant decreases in oil and gas with significant increases in biomass, biodiesel and heat pumps. Cold climate heat pumps draw air from the outside and by compressing that air, create heat. A somewhat similar system can use the ground or groundwater as a heat source (Efficiency Vermont 2016, Available via: <https://www.encyvermont.com/products-technologies/heating-cooling-ventilation/heat-pumps> Accessed April 17, 2017). These systems can be very efficient.

Table 24 showing residential energy demand for Pownal is based on low to high ranges for heat pumps from 2015 through 2050. These ranges then affect the use of biodiesel, wood and propane with lower demand for those fuels with higher demand met from heat pumps. Space heating for housing units consumed primarily gas (liquid propane or other delivered; 18% of all use) and fuel oil (59% of all use), though wood (19% of all use) was also used.

Tables 25, 26 and 27 address commercial and industrial energy demand for the region and for Pownal. Space heating fuel types for businesses were not calculated, but for the entire

³⁵ The regional energy plan determined that there were 2,803 vehicles in Pownal using an estimated 1.9 million gallons of gasoline in 2014. The source of that information is the American Community Survey, which differs from the sources for the LEAP data.

county, 34% of space heating is from electricity, 30.5% from propane, 28.5% from heating oil and 7% from biomass (BCRC 2017). The target for electricity demand drops slightly by 2015 while it increases for industrial uses. Conservation strategies are key to achieving all of these targets.

Fuel	2015 Btu	2015 Fuel Quantity	2015 Miles Driven	2015 # Vehicles	2025 Btu	2025 Fuel Quantity	2025 Miles Driven	2025 # Vehicles	2035 Btu	2035 Fuel Quantity	2035 Miles Driven	2035 # Vehicles	2050 Btu	2050 Fuel Quantity	2050 Miles Driven	2050 # Vehicles
Gasoline (gallons)	1115	9,260,490	231,512,242	19,293	888	7,375,170	221,255,108	18,438	447	3,712,501	126,225,042	10,519	35	290,688	10,755,457	896
Ethanol (gallons)	149	1,758,859	31,659,466	2,638	99	1,168,638	24,541,398	2,045	54	637,439	14,661,095	1,222	6	413,155	9,915,716	826
Electricity (KWH)	1	293,083	1,172,333	98	14	4,103,165	18,464,244	1,539	91	26,670,574	126,685,229	10,557	178	52,168,816	260,844,080	21,737
Diesel (gallons)	38	276,221	9,667,735	806	23	167,186	6,687,456	557	13	94,497	4,157,853	346	-	-	-	-
Biodiesel (gallons)	3	23,512	752,381	63	15	117,559	4,114,581	343	23	180,258	6,849,798	571	33	258,631	10,345,233	862
	1306		274,764,157	22,897	1039		275,062,787	22,922	628		278,579,017	23,215	252		291,860,486	24,322

Fuel	2015 Btu	2015 Fuel Quantity	2015 Miles Driven	2015 # Vehicles	2025 Btu	2025 Fuel Quantity	2025 Miles Driven	2025 # Vehicles	2035 Btu	2035 Fuel Quantity	2035 Miles Driven	2035 # Vehicles	2050 Btu	2050 Fuel Quantity	2050 Miles Driven	2050 # Vehicles
Gasoline (gallons)	123.8	1,027,914	25,697,859	2,141	98.6	818,644	24,559,317	2,047	50	412,088	14,010,980	1,168	3.9	32,266	1,193,856	99
Ethanol (gallons)	16.5	195,233	3,514,201	293	11.0	129,719	2,724,095	227	6	70,756	1,627,382	136	0.7	45,860	1,100,645	92
Electricity (KWH)	0.1	32,532	130,129	11	1.6	455,451	2,049,531	171	10	2,960,434	14,062,060	1,172	19.8	5,790,739	28,953,693	2,413
Diesel (gallons)	4.2	30,661	1,073,119	89	2.6	18,558	742,308	62	1	10,489	461,522	38	-	-	-	-
Biodiesel (gallons)	0.3	2,610	83,514	7	1.7	13,049	456,719	38	3	20,009	760,328	63	3.7	28,708	1,148,321	96

Fuel	2015 Btu	2015 Fuel Quantity	2015 Miles Driven	2015 # Vehicles	2025 Btu	2025 Fuel Quantity	2025 Miles Driven	2025 # Vehicles	2035 Btu	2035 Fuel Quantity	2035 Miles Driven	2035 # Vehicles	2050 Btu	2050 Fuel Quantity	2050 Miles Driven	2050 # Vehicles
Totals	145.0		30,498,821	2,542	115.3		30,531,969	2,544	70		30,922,271	2,577	28.0		32,396,514	2,700

Fuel	2015	2025	2035	2050	Fuel	2015	2025	2035	2050
Biodiesel (gallons)	86,210 (0.6%)	462,401 (3.6%)	838,591 (8.3%)	1,426,388 (23.5%)	Biodiesel	85	534	1,227	3,453
Cord Wood (cords)	23,550 (24.6%)	20,100 (24.7%)	16,400 (25.5%)	11,550 (29.8%)	Cord Wood	3,627	3,640	3,761	4,382
Wood pellets (tons)	2,848 (2.5%)	4,000 (4.1%)	4,606 (5.9%)	5,212 (11.1%)	Wood pellets	362	598	871	1,632
Electric Resistance (KWH)	21,688,159 (3.9%)	18,757,327 (3.9%)	10,550,996 (2.8%)	2,930,832 (1.3%)	Electric Resistance	570	579	413	190
Heat Pump (KWH)	4,689,332 (0.8%)	24,912,075 (5.2%)	46,893,318 (12.5%)	63,012,896 (27.7%)	Heat Pump	123	770	1,835	4,079
Kerosene (gallons)	474,074 (3.3%)	333,333 (2.8%)	200,000 (2.1%)	- (0.0%)	Kerosene	493	407	310	-
LPG (gallons)	3,823,550 (16.9%)	3,056,480 (15.9%)	2,041,587 (13.5%)	613,656 (6.7%)	LPG	2,495	2,345	1,984	987
Oil (gallons)	6,578,421 (47.3%)	4,695,757 (39.7%)	2,740,403 (29.4%)	- (0.0%)	Oil	6,968	5,849	4,323	-
					Total	14,722	14,722	14,722	14,722

Table 23. Total residential energy demand by standard fuel measurement units and number of households using fuel types from 2010 to 2050 for Pownal, based on 9.0% of the region's households. Ranges for households vary with the number of heat pumps.

Fuel	2015	2025	2035	2050		Fuel	2015	2025	2035	2050
Biodiesel (gallons)	8,276	44,390	80,505	136,933		Biodiesel	8	51-46	118-100	331-265
Cord Wood (cords)	2,261	1,930	1,574	1,109		Cord Wood	348	349-314	361-307	421-337
Wood pellets (tons)	273	384	442	500		Wood pellets	35	57-52	84-71	157-125
Electric Resistance (KWH)	2,082,063	1,800,703	1,012,896	281,360		Electric Resistance	55	56-50	84-71	157-125
Heat Pump (KWH)	450,176	2,391,559	4,501,758	6,049,238		Heat Pump	12	74-208	176-361	392-596
Kerosene (gallons)	45,511	32,000	19,200	-		Kerosene	47	39-35	30-25	0
LPG (gallons)	367,061	293,422	195,992	58,911		LPG	239	225-203	190-162	95-76
Oil (gallons)	631,528	450,793	263,079	-		Oil	669	562-505	415-353	0
						Total	1,413	1,413	1,413	1,413

Table 24. Commercial energy demand for the Bennington Region from 2010 projected to 2050 in standard fuel measurement units. Proportions are for BTUs				
Fuels	2010	2025	2035	2050
Electricity (KWH)	101,113,716 (45%)	104,923,798 (48%)	101,699,883 (50%)	98,769,050 (54%)
Residual Fuel Oil (gallons)	133,609 (3%)	93,527 (2%)	60,124 (1%)	- (0%)
LPG (gallons)	1,652,151 (18%)	1,439,732 (16%)	1,191,909 (15%)	814,275 (11%)
Oil (gallons)	1,417,450 (26%)	995,849 (18%)	617,863 (12%)	14,538 (<1%)
Wood (tons)	375 (8%)	631 (14%)	794 (18%)	1,075 (28%)
Biodiesel (gallons)	- (0%)	117,559 (2%)	195,932 (4%)	337,004 (7%)

Table 25. Commercial energy demand for the Town of Pownal from 2010 projected to 2050 in standard energy units based on 2.0% of region's commercial establishments				
Fuels	2010	2025	2035	2050
Electricity (KWH)	2,022,274	2,098,476	2,033,998	1,975,381
Residual Fuel Oil (gallons)	2,672	1,871	1,202	-
LPG (gallons)	33,043	28,795	23,838	16,285
Oil (gallons)	28,349	19,917	12,357	291
Wood (tons)	8	13	16	22
Biodiesel (gallons)	-	2,351	3,919	6,740

Table 26. Industrial energy demand for the Bennington Region from 2010 projected to 2050 in standard fuel measurement units. Proportions are for BTUs				
Fuels	2010	2025	2035	2050
Electricity (KWH)	84,407,972 (31.9%)	99,062,134 (39.6%)	108,733,880 (45.4%)	123,094,959 (55.0%)
Fuel Oil (gallons)	3,012,893 (49.9%)	2,184,515 (38.3%)	1,623,355 (29.7%)	788,296 (15.4%)
LPG (gallons)	672,662 (6.3%)	519,248 (5.2%)	413,038 (4.3%)	259,624 (2.9%)
Wood (tons)	6,750 (11.9%)	9,000 (16.9%)	10,500 (20.6%)	12,750 (26.7%)

Table 27. Industrial energy demand for the Town of Pownal from 2010 projected to 2050 in standard energy units based on 4.2% of regions industrial establishments				
Fuels	2010	2025	2035	2050
Electricity (KWH)	3,545,135	4,160,610	4,566,823	5,169,988
Fuel Oil (gallons)	126,542	91,750	68,181	33,108
LPG (gallons)	28,252	21,808	17,348	10,904
Wood (tons)	284	378	441	536

8.3 Existing Programs in Pownal

New residential construction built after July 1, 1998, is required to adhere to the Vermont Residential Building Energy Standards (VRBES), and all relevant updates. These include such measures as efficient insulation, heating systems, and weatherproofing windows and doors. At such time as Pownal has a building inspector, the building inspection required for issuance of a certificate of occupancy should include documentation that the new construction meets these standards.

Green building and LEED Construction (Leadership in Energy and Environmental Design) standards also promote the use of natural, recycled and durable building materials, as well as energy efficiency. To receive LEED certification, building projects must satisfy prerequisites and earn points to achieve different levels of certification. Some towns in Vermont provide building incentives, like density bonuses, for projects that are LEED certified.

Manufactured housing must also meet the same energy standards as traditionally constructed homes, and energy-efficient modular and manufactured home designs could help residents to reduce their fuel bills. Traditional manufactured homes have an inherently inefficient design because of their high service area to volume ratio and low insulation values. (BREP, page 21). Pownal should incorporate energy efficiency guidelines into a town building code.

Pownal has the largest commercial solar array in Bennington County with the 2.2 MW array at the former race track. In addition, there are solar arrays at former gravel pits generating 2.7 MW, making Pownal the largest generator of electricity from solar in the county (BCRC, 2017). The hydroelectric dam on the Hoosic, which is owned by the town, was revived and became operational in 2017 and can generate 400 kW of electricity (BCRC 2017). Green Mountain Power has a high grid capacity for new generating capacity though upgrades are needed in Pownal (BCRC, 2017).

8.4 Energy Siting

For regional and town plans to receive a determination of energy compliance, the plans must identify potential areas for developing renewable energy sources as well as areas unsuitable for those resources. This must also include categories of the sizes of those resources,

and the potential energy generated. The Bennington County Regional Energy Plan (BCRC 2017) went through a review process, including public hearings held by the Department of Public Services and received that designation. Towns may use the maps developed by their regional commission and may add additional constraints. The mapping standards listed by the Vermont Department of Public Service (2017) are:

Mapping Standard 10: Does the plan identify existing electric generation sources? Maps should show generation facilities greater than 15 kW using sources provided by the Department or others as available (See Map 15).

Mapping Standard 11: Does the plan identify potential areas for the development and siting of renewable energy resources and the potential generation from such generators in identified areas? These maps should include:

11A. Raw renewable potential analysis of wind and solar. These are available from both the Bennington County Regional Commission and the Vermont Geoportal.

Wind resources are evaluated based on the potential size of a turbine, measured as the height of the hub or center of the blades from ground level and the lower wind speed below which a given size of turbine would not be viable. Table 28 shows the classes used by the Vermont Department of Public Services.

Table 28. Wind turbine size classes (Source: VT DPS 2017)			
Scale	Residential	Commercial/Community	Utility
Hub Height	30 m (98.4 ft.)	50 m (164 ft.)	70 m (229.6 ft.)
Lower wind speed cutoff	4.5 m/s (10 mph)	5.5 m/s 12.3 mph)	6.5 m/s (14.5 mph)

Similarly, solar resources are based on the amount of electricity that can be generated (Table 29).

Table 29. Solar energy size classes (Source VT DPS 2017)		
Category	Type	Generation Capacity
Net Metered ³⁶	Residential	<=15 kW
	Small Commercial	<=50 kW
	Commercial/Large	<=150 kW
	Residential Group	<=500 kW
Standard Offer ³⁷		2.2 MW

³⁶ Net metering requires utilities to allow individuals or groups to generate their own power and sell the excess back to the grid.

³⁷ The Vermont Standard Offer program provides incentives to rapidly develop larger scale renewable energy projects.

Table 29. Solar energy size classes (Source VT DPS 2017)		
Category	Type	Generation Capacity
Utility		Can be less than, equal to or greater than 5 MW

11B. Known constraints representing high priority natural resources including (maps in this plan are listed where applicable):

Vernal Pools (none mapped within Pownal)

NYSDEC River Corridors (Map 8)

FEMA Floodways (Map 8)

State-significant Natural Communities and Rare, Threatened and Endangered Species (Map 9)

National Wilderness Areas (none mapped within Pownal)

Class 1 and Class 2 Wetlands and Advisory Layers (Map 8)

Regionally or Locally Identified Critical Resources (see Pownal Energy Goal #4 below)

11C. Possible constraints are lower priority resources. Plans need to articulate policies on these constraints:

Agricultural Soils (Map 9)

FEMA Special Flood Hazard Areas (Map 8)

Protected Lands (Map 14)

Deer Wintering Areas (Map 9)

ANR's Vermont Conservation Design Highest Priority Forest Blocks (Maps 7 and 9)

Hydric Soils (Maps 5 and 7)

Regionally or Locally Identified Resources (see Pownal Energy Goal #4 below)

The above resources (constraints) are described in Section 4.0 of this plan. Maps are at the end of this plan.

11D. Transmission and distribution resources and constraints showing potential for connection to distribution-level power lines.

To meet mapping standards 11 and 12 A-D, Map 15 shows the areas where both solar and wind resources potentially exist, both with and with none of the constraints listed above. Areas where utility scale wind are highlighted and are found within large, contiguous forest blocks in the Green Mountains and Taconics. Other wind resources are suitable for 30 and 50 m hub height turbines. The map also shows three phase transmission lines shown in the regional energy plan (BCRC 2017) and those identified by the Planning Commission along with a one-mile buffer from those lines indicating areas within which generating facilities could be connected to such lines. Map 15 also shows existing energy sources, listed in Table 28 below.

Table 30. Existing energy sites in Pownal.		
Source:		
Type	Location	Capacity ³⁸
Hydroelectric	Hydroelectric dam at Dean Rd.	400 kW
Solar array at racetrack	Former Pownal racetrack	2200 kW
Solar array at Barlow Pit	Barlow Pit at Dean Rd.	
Solar array at Northwest Hill Rd.	Northwest Hill Rd.	2200 kW

Table 31 shows the number of acres of wind and solar, with and without constraints, by size classes. For example, the number of acres of wind falling in contiguous areas of greater than 100 acres is 861 with no constraints and 8,811 with constraints.

Table 31. Area in acres of potential solar and wind resources in Pownal			
Type of Resource	No Constraints	With Constraints ³⁹	Total
Wind >100 acres	861	8811	9672
Wind 10 to 100 acres	699	545	1244
Wind 1 to 10 acres	158	88	246
Wind < 1 acre	11	8	19
	1729	9453	11183
Solar > 5 acres	367	3249	3615
Solar 1 to 5 acres	338	616	954
Solar < 1 acre	161	271	432

The following mapping standards are addressed under Pownal Energy Goal #4 below.

11 E. Preferred locations (specific areas or parcels) for siting a generator with any specific siting criteria for the locations. A “preferred site” as defined by the Public Utilities Commission (2017) can include:

1. A new or existing structure whose primary use is not the generation of electricity or providing support for the placement of equipment that generates electricity;
2. A parking lot canopy over a paved parking lot, provided that the location remains in use as a parking lot;
3. A tract previously developed for a use other than siting a plant on which a structure or impervious surface was lawfully in existence and use prior to July 1 of the year preceding the year in which an application for a certificate of public good under this Rule is filed but not including any headwaters, streams, shorelines, floodways, rare and irreplaceable natural areas, necessary wildlife habitat, wetlands, endangered species, productive forestlands, or primary agricultural soils
4. Land certified by the Secretary of Natural Resources to be a brownfield site

³⁸ The Bennington County Regional Commission 2017 plan lists the two gravel pits as having a total of 2,700 kw.

³⁹ Possible constraints are those listed in 11.C above as well as Riparian Wildlife Corridors and High Priority Surface Water and Riparian Areas described in Section 4.0 (see Pownal Energy Goal #4 below).

5. A sanitary landfill provided that the Secretary of Natural Resources certifies that the land constitutes such a landfill and is suitable for the development of the plant;
6. The disturbed portion of a lawful gravel pit, quarry, or similar site for the extraction of a mineral resource provided that all activities pertaining to site reclamation required by applicable law or permit condition are completed prior to the installation of the plant
7. A specific location designated in a duly adopted municipal plan under 24 V.S.A. chapter 117 for the siting of a renewable energy plant or specific type or size of renewable energy plant, provided that the plant meets the siting criteria recommended in the plan for the location;
8. A specific location that is identified in a joint letter of support from the municipal legislative body and municipal and regional planning commissions in the community where the net-metering system will be located.
9. A site listed on the National Priorities List (NPL) established under the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. chapter 103 and the development will not compromise or interfere with any site remediation.
10. On the same parcel as, or directly adjacent to, a customer that has been allocated more than 50 percent of the net-metering system's electrical output.

Mapping Standard 12: Does the plan identify areas that are unsuitable for siting renewable energy resources or particular categories or sizes of those resources? These might be areas that have known or potential constraints or other reasons that make them inappropriate for energy development.

12A. Are areas identified as unsuitable for particular categories or sizes of generators consistent with resource availability and/or land use policies in regional or municipal plans applicable to other types of development? Areas that do not have the potential for wind or solar are unsuitable, but other areas that do have such potential may be unsuitable due to identified constraints. In those cases, plans should consider similar potential impacts from other types of uses and treat them similarly to energy resources.

12B. Does the plan ensure that any regional or local constraints (11B-11C above) identified are supported through data or studies are consistent with the remainder of the plan and do not include an arbitrary prohibition or interference with the intended function of any particular renewable resource or size? First, has a field study been completed identifying resources such as vernal pools? Have viewshed or other studies been completed to support aesthetic constraints? Then, do the policies also limit other types of development?

Mapping Standard 13 applies only to regional plans. Mapping Standard 14 for municipalities asks, for municipalities seeking a determination of energy compliance from the Department and not using their region's maps only: Does the plan ensure that its approach, if applied regionally, would not have the effect of prohibiting any type of renewable generation technology in all locations?

Unless discussed above, the application of the mapping standards is discussed in 8.5 below.

8.5 Energy Goals, Objectives and Actions

State Planning Goal #7 (24 V.S.A. § 4302): To encourage the efficient use of energy and the development of renewable energy resources.

In addition, the Vermont Comprehensive Energy Plan (2016, expanded upon the statutory goal of 25% renewable by 2025 (10 V.S.A. § 580(a)), by establishing the following set of goals:

- Reduce total energy consumption per capita by 15% by 2025, and by more than one third by 2050.
- Meet 25% of the remaining energy need from renewable sources by 2025, 40% by 2035, and 90% by 2050.
- Three end-use sector goals for 2025: 10% renewable transportation, 30% renewable buildings, and 67% renewable electric power.

The following goals, objectives and actions represent a program to achieve the targets in the tables above as required by the Department of Public Service (DPS 2017). In some cases, the reader will need to refer to other sections of this plan that address similar issues.

Pownal Energy Goal 1: Encourage residents, businesses and institutions in Pownal to conserve energy by implementing a long-term education and outreach programs to conserve energy and reduce fossil fuel use.

Objective 1: Identify and disseminate information on resources for residents, businesses and institutions on ways to conserve energy.

Actions:

1. Hire a local energy coordinator (which could be a position shared with another town) to implement conservation programs
2. Develop a Town Energy Committee headed by the Energy Coordinator to assure these actions are implemented.
3. Develop and implement a program of community education and outreach on reducing energy use through conservation, retrofitting, and lifestyle changes.
4. Identify potential funding sources such as grants, tax credits or other means to assist residents and businesses in energy conservation.
5. Encourage residents to hire Efficiency Excellence Network (EEN) contractors when completing energy efficiency projects by including links to the EEN on municipal websites.
6. Work with partner organizations and Efficiency Vermont, an Energy Efficient Utility (EEU) to offer workshops and educational opportunities to businesses, including rental housing owners on efficiency in new construction, retrofits, and conservation practices.

7. Sponsor workshops for home owners in weatherization and other methods of conserving energy
8. Coordinate with and promote Energy Efficiency Utility (EEU) programs and the state Weatherization Assistance Program for low-income households and encourage residents to participate.
9. Provide contact information for energy efficiency resources to people buying property or applying for building or remodeling permits.
10. Support public education and awareness programs aimed at reducing energy consumption and using energy more efficiently.

Objective 2: Promote energy efficiency in buildings

Actions:

1. Promote the use of the residential and commercial building energy standards by distributing code information to permit applicants and ensuring code compliance.
2. Provide energy code and energy efficiency program information when residents apply for municipal land use permits that include alterations or construction of a building.
3. Require that energy code certificates be submitted to the town for all new building construction as well as for additions, alterations, renovations and repairs in existing buildings.
4. Promote the use of landscaping for energy conservation and efficiency

Objective 3: Provide leadership in energy efficiency

Actions:

1. Conduct a building energy audits of how much energy municipal buildings (including schools) use.
2. Establish a timeline for needed improvements or replacements as identified by energy audits of the municipal owned buildings, vehicles, and equipment.
3. Consider energy efficiency and energy conservation in new municipal construction projects, equipment purchases and operations.
4. Use life cycle costing of potential energy improvements during design and construction planning.
5. Incorporate weatherization/energy efficiency projects into the municipal Capital Budget Program and implement weatherization/energy efficiency projects in municipal buildings.
6. Enroll municipal buildings into energy certification programs.
7. Develop policies for evaluating investments in infrastructure that consider energy efficiency, for example making purchasing decisions with life cycle analysis and building operation guidelines in mind.
8. Replace fossil fuel heating with cold-climate heat pumps, geothermal heat or advanced wood heating systems.

9. If a new town hall is constructed or purchased, make sure the location is within one of the village areas to reduce the need for residents to drive to the building.
10. See also Section 5.0 Land Use on encouraging development within villages and limiting sprawl.

Pownal Energy Goal 2: Reduce the use of fossil fuels for both heating and transportation

Objective 1: Encourage options for heating and cooling of homes, businesses and institutions.

Actions:

1. Promote the use of cold climate heat pumps with education/presentations in coordination with the EEU's/electric utilities.
2. Support the use of ground-source (also known as geothermal) heat pump heating and cooling systems for new construction.
3. Promote wood stove change-out programs that take older non-EPA certified stoves out of service and replace them with more efficient and lower emitting cord wood and pellet stoves.
4. Provide information on the installation of advanced wood heating equipment for new construction projects.
5. Provide information to assist residents, businesses and institutions to investigate and acquire advanced wood heating systems.
6. See also Section 4.0 Natural Resources on forest management.
7. Identify potential locations for wood-fired district heating within the village areas. Potential district heating site include areas of Pownal Center including the town hall, fire station, and possibly Pownal Elementary and Pownal Village including the library, church, American Legion and commercial establishments (BCRC 2017).
8. Investigate the use of an anaerobic digester to capture methane at the wastewater treatment plant.
9. Investigate the use of food and other organic waste for use in an anaerobic digester.

Objective 2: Encourage options for reducing the number of vehicle trips by residents, both within the town and for commuting to work.

Actions:

1. Promote development within villages including mixed residential and commercial uses so residents can drive less frequently and far and to reduce sprawl.
2. Build pathways and sidewalks within villages to make bicycle and pedestrian use easier, safer and more attractive. This could include requiring that new development include pedestrian and bike-friendly infrastructure and connect to the existing and planned pedestrian and bike networks.
3. Amend the zoning bylaws to reduce or eliminate potential commercial strip development along Route 7 and 346 except in village and commercial zones (see Section 5.0 Land Use).

4. Seek to reintroduce passenger rail service to Pownal.
5. Provide information for residents and businesses on the Green Mountain Express that serves Pownal and travels to both Bennington and Williamstown
6. Identify and develop one or more park and ride locations to serve commuters traveling to Bennington and Williamstown.
7. Provide for recharge stations for electric vehicles at the park and ride locations.
8. Contact local vehicle dealers to suggest that they offer EV and fuel-efficient vehicles for both sale and lease.
9. Investigate the use of biodiesel for town vehicles.
10. Encourage major employers, such as TAM, to investigate the use of biodiesel for their trucks.
11. Encourage Pownal Elementary and other major employers to install charging stations for electric vehicles.
12. Encourage Pownal Elementary and the Southwestern Vermont Supervisory Union to use biodiesel for school buses when issuing bids for fuels.
13. Promote a working landscape outside of designated growth and residential areas, e.g. by working with land trusts and landowners of farm and forest tracts to conserve key parcels of land.

Pownal Energy Goal 3: Promote compact development in the three villages, with low-density uses and conservation emphasized in outlying areas so as to promote conservation of energy (see Land Use Goal #2).

Objective 1: Pownal should encourage or require lot dimensions and building siting, design and construction techniques to maximize access to on-site renewable energy resources and incorporation of emerging technology.

Actions:

1. Encourage efficient residential and commercial site planning and building construction. Require all major development proposals to quantify and evaluate the energy impact of their proposal.
2. Advocate infill and redevelopment of existing buildings or developed properties, particularly in Pownal's three villages.
3. Promote low-impact development and green infrastructure practices to reduce local temperatures and shade building surfaces. These siting requirements should be developed for use by the Development Review Board and the Zoning Administrator.
4. Implement energy efficient building and site design guidelines, standards, or incentives in zoning that help reduce energy requirements for power, lighting, heating, cooling and transportation.
5. Builders of new homes shall comply with Vermont energy standards and should complete and file with the Town a Vermont Residential Building Energy Standards Certificate.

Pownal Energy Goal #4: Identify suitable areas for wind, solar, biomass and hydroelectric generation while protecting natural resources as described in Section 4.0 and avoiding inappropriate locations including but are not limited to:

- Both known and potential constraints listed in Section 8.4
- Riparian Wildlife Corridors and High Priority Surface Water and Riparian Areas described in Section 4.0
- Areas within 1,000 meters of residences, identified by the Bennington County Regional Commission as unsuitable for commercial wind facilities.

Objective 1: Using mapping standards 12 A-E from Section 8.4, identify potential sites for solar projects to provide an additional 1,600 kW of capacity by 2050 as outlined in the regional energy plan (BCRC 2017).

Actions:

1. Identify potential areas for solar development consistent with Goal #4 above.

The Planning Commission evaluated potential areas for solar along with known and potential constraints. They determined that only sites without any constraints should be considered so as to assure the protection of agricultural lands, wetlands, floodplains, and surface and groundwater resources, rare species and natural communities, high priority forest blocks, physical landscapes, unique natural features, wildlife habitat and other natural resources to achieve the goals and objectives of Section 4.0. They added the additional constraints listed in Goal #4 above. Map 16 shows known, potential and the above additional constraints highlighting contiguous areas of five acres and greater. Map 17 and Table 32 provide information on preferred potential solar sites based on expansion of existing and creation of new sites.

2. Identify preferred sites for new or expanded solar facilities.

The Planning Commission then identified preferred sites for either new development or expansion of existing solar generation capacity. These are also shown on Map 17 and listed in the table below. The Commission determined that new solar energy development of 150 kW or greater be limited to locations that have already been impacted such as the former racetrack, the town landfill, the tannery and gravel pits. Such sites are already considered preferred sites by the Department of Public Services. Solar energy development on rooftops of major buildings such as the elementary school would be appropriate (Table 32). Other sites that are, by definition, preferred sites (see Mapping Standard 11E above), while not all mapped, would continue to be preferred sites.

Name	Owner	Description
American Legion	American Legion	Potential for solar in open space adjacent to buildings
Cleeland Corporation	Cleeland Corporation	Potential on approximately 35 acres of open field
Dean Rd.	Maxum/	Existing with potential for some expansion
Green Mountain Racetrack		Existing with potential for some expansion
Mack Molding	Mack Molding	Large building with extensive rooftops that could potentially support solar panels
Northwest Hill Rd.	Palmer Trust	Existing with potential for some expansion
Oak Hill School	Oak Hill School	Potential for rooftop solar panels
Pownal Elementary	Pownal Elementary	Potential for rooftop solar panels
Pownal Fire Protection Association	Pownal Fire Protection Association	Potential for rooftop solar panels
Pownal Highway Department	Town of Pownal	Some potential on unused open areas
Pownal Landfill/Transfer Station	Town of Pownal	Designated preferred site with proposal from Green Lantern for 150 kW array on the lined landfill ⁴⁰
Pownal Town Barn	Town of Pownal	Possible rooftop solar
Pownal Wastewater Treatment Plant	Town of Pownal	Designated preferred site with proposal from Green Lantern for 150 kW array
TAM	TAM, Inc.	TAM is currently in the design phase for solar

Map 17 shows parcels for some of these, and specific building locations for others. Solar development on these sites should be limited to those areas that are free from constraints to achieve Pownal Energy Goal #4, to the maximum extent practicable.

3. Pownal should develop an ordinance requiring screening of solar projects greater than 100 KW.

Objective 2: Using the mapping standards from Section 8.4 identify potential sites for wind projects

Actions:

1. Identify potential areas for wind development consistent with Goal #4 above.

⁴⁰ The unlined landfill is likely to need more extensive monitoring and possibly further remediation.

The Planning Commission evaluated known and potential constraints and the additional constraints used in evaluating potential for solar energy development. Section 4.0 of this plan describes the importance of and actions to protect agricultural lands, wetlands, floodplains, and surface and groundwater resources, high priority forest blocks, physical landscapes, rare species and natural communities, unique natural features, wildlife habitat and other natural resources. Map 18 shows areas where wind energy resources exist absent any constraints. The inset map shows an added constraint from the Bennington County Regional Energy Plan. Based on public comment, the Commission added a 1,000 m buffer from residences, shown in the inset map in Map 18. This effectively eliminates any suitable areas for wind power in the Town of Pownal.

Based on the above analyses, areas unsuitable for either wind or solar development include those areas where the resources do not exist (Map 15) or areas of known or potential constraints (Maps 16 and 18).

Based on these analyses, there are no suitable areas for wind development within the town except for a small area in the northwestern part of the town.

Objective 3: Identify potential sites for biomass energy production

Biomass from wood and other sources is already used for home heating in wood and pellet stoves. Biomass to generate electricity is very inefficient. The Planning Commission has determined that biomass for electricity should not be permitted within Pownal. Biomass for commercial or institutional facilities could be permitted to serve Pownal Elementary, the Town Hall, the American Legion, the fire departments and other large buildings. District heating may also be possible, particularly in the villages, though the cost of creating such systems may be prohibitive.

Objective 4: Support the appropriate development of a small-scale hydroelectric where feasible and practical on the Hoosic.

Actions:

1. The town should support the proposed facility in North Pownal at the former Tannery site provided agreement with the Town and hydro developers and affected property owners can be achieved.
2. The town should support the exploration of other environmentally sound hydroelectric potential on the Hoosic River subject to state and federal permitting.
3. The town should support small scale hydroelectric where feasible and subject to state and federal permitting.

9.0 Implementation

See Exhibit A.

10.0 References

10.1 Reports and Literature

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10.2 Information Used to Create Maps

Unless otherwise noted, data came from the Vermont Geodata Portal and from BCRC data. The base map came from ESRI data available through ArcGIS Online.

Map 1. Town of Pownal

Map 2. Pownal Villages: Pownal Planning Commission with assistance from BCRC and ACCD.

Map 4. Slope and Elevation

Map 5. Soils: NRCS Web Soil Survey,
<https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

Map 6. Natural Cover Types: NOAA Office of Coastal Management, Digital Coast,
<https://coast.noaa.gov/digitalcoast/tools/lca>

Map 7. Terrestrial and Aquatic Systems

Map 8. Flood Zones, River Corridors and Surface Waters: FEMA Flood Map Service Center,
<https://msc.fema.gov/portal>

Map 9. Unique Natural Features: Sorenson et al. 2015.

Map 10. Pownal Land Use Designations: Pownal Planning Commission

Map 11. Pownal Transportation Map: VTRANS Town Highway Maps,
<http://vtrans.vermont.gov/planning/maps/town-maps>

Map 12. Pownal Landslides: (Dale, 2105)

Map 13. Town Facilities and Public Water: Pownal Planning Commission

Map 14. Open Space Lands.

Map 15. Existing and Potential Energy: Pownal Planning Commission for additional three-phase transmission lines

Map 16. Potential Solar Energy Given Known and Potential Constraints

Map 17. Preferred Solar Sites: Pownal Planning Commission

Map 18. Potential Wind Resources and Constraints

11.0 Review of Statutory Requirements and Consistency with Other Plans

11.1 Consistency with State Goals

The Vermont Municipal and Regional Planning and Development Act encourages towns to develop plans that are compatible with the plans of other municipalities and with the regional plan, and which are consistent with the goals that are contained in 24 V.S.A. Section 4302. The following section reviews this Plan's consistency with those goals and discusses the Pownal Town Plan in the context of the Bennington County Region and nearby municipalities. The statute also requires that the plan include a recommended program for implementing the objectives of the Plan. That requirement is met through the specific policies and recommendations that accompany each individual element of the Plan.

The Planning and Development Act contains one set of goals that deals with the planning process—24 V.S.A. Section 4302(b):

- To establish a coordinated, comprehensive planning process and policy framework;
- To encourage citizen participation;
- To consider the use of resources and the consequences of growth and development;
- To work with other municipalities to develop and implement plans.

Thirteen specific goals (24V.S.A. Section 4302(c)) should be reflected in the Town Plan. Those goals are presented below with a discussion of how each is address in the Town Plan.

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

The plan proposes village designation for North Pownal, Pownal Center and Pownal to provide centers for commercial/industrial and residential development. Channeling development into these areas is critical to creating compact centers, increasing economic development activity and reducing dependence on fossil fuels. The town already provides wastewater treatment for

these areas as well as water to Pownal Village.

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

The economic development section proposes creation of an economic development committee and further studies to develop strategies to attract new businesses. The plan proposes village designation for North Pownal, Pownal Center and Pownal to provide centers for commercial/industrial and residential development. Farming is also an important economic resource and local farming and farm-to-table operations would be supported. The town supports both regional and statewide economic development programs and initiatives. Finally, the town's natural resource and recreational resources are important assets to draw visitors to the town to spur economic activity.

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

The Solomon Wright Library offers GED courses. There are numerous opportunities for adult education in both Williamstown and Bennington including the Community College of Vermont, the Tutorial Center, the Career Development Center and Southern Vermont College.

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

As part of both the economic development and energy sections of the plan, the town intends to provide for more pedestrian and bicycle pathways, increase opportunities for public transportation and park-and-ride parking areas to encourage sharing private transportation.

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

The plan has an extensive assessment of natural resources and promotes strategies to protect large, unfragmented forests, protection of groundwater and surface waters, conservation of unique natural features including rare species and unique natural communities, and agricultural lands and important agricultural soils. The plan also shows the locations of forest blocks and habitat connections and provides for the minimization of forest fragmentation while promoting the viability and ecological functions of forests.

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

The plan identifies ground and surface waters resources, large intact forests, and rare species and natural communities. Objectives and actions for their protection are identified including active land protection and avoidance of impacts from development. The extensive undeveloped lands are critical to providing continued clean water for the town and represent important recreational resources as well.

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

The plan follows guidance from the Department of Public Service to reduce the use of fossil fuels, conserve energy through retrofitting of existing structures and meeting energy standards for new buildings and more use of wind, solar and other non-fossil sources of energy. The town intends to expand such energy sources provided they do not conflict with natural resource goals and provide continued economic development.

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

Expanding recreational use is a key part of the economic development program proposed in the town plan. In addition, the extensive natural resource base provides untapped recreational resources including hiking, mountain biking, boating and others. Access would be provided, where possible, from the village centers.

9) To encourage and strengthen agricultural and forest industries.

The plan proposes to assure that at least 2000 acres of agricultural lands are maintained by reducing development pressure, conservation and maintaining important agricultural soils.

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

Pownal has some extensive sand and gravel mining operations. The plan proposes strategies to assure these are used in ways that minimize impacts on adjacent lands and provide for restoration of mined lands.

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

The Pownal Town Plan supports the rehabilitation of existing housing stock, improving the safety of existing housing and providing affordable housing for all residents. Specific actions should be taken to achieve these purposes as well as to support those with special needs.

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

Pownal has an extensive town road system including bridges and culverts that require maintenance and upgrading. The town needs a community center to foster communication and collaboration. The town intends to continue to support the many organizations, including the library, fire departments and social service organizations that provide critical town services.

13) To ensure the availability of safe and affordable childcare.

There are several early childcare facilities in the town which represent resources for children as well as areas for communication and collaboration between their parents. These facilities also provide services for residents beyond Pownal.

14) To encourage flood resilient communities.

The natural resource section (4.0) describes the relationship between forests and other terrestrial systems and surface waters, and the importance of maintaining those natural systems to protecting developed areas from flooding. Both special flood hazard areas and river corridors have been identified. Specific actions have been identified including avoiding development in those areas, promoting flood proofing of existing structures, educating the public on flood hazards, maintaining infrastructure and other actions critical to the protection of the public health, safety and welfare.

11.2 Relationship to Other Plans

The Pownal Town Plan is consistent with the regional plan adopted by Bennington County Regional Commission in 2015. The town plan goals are consistent with those of the regional plan. The Taconics to the west and Green Mountains to the east provide undeveloped areas that merge with undeveloped areas in towns in New York as well as with Stamford to the east. Williamstown, Massachusetts is largely undeveloped along those high elevation areas as well. The town of Bennington to the north has similar, low density land use designations to those of Pownal. The town is also working to be consistent with statewide energy goals which have been integrated into the regional energy plan adopted by the Bennington County Regional Commission in 2017.

Exhibit A. Index of actions for major sections

This plan is divided into sections that address major areas as required by Vermont statutes. Within each of these sections, there are broad goals, which are provided below. In some cases, there are specific goals for subject areas and all sections have objectives and actions.

Exhibit A. Index of actions for major sections		
Section	Goals	Objectives and Actions
Section 3.0 Population, Housing and Economic Development	Pownal Economic Development Goal #1: Assure that the town government has the capabilities to implement economic development and other actions listed in this plan.	Objectives and actions can be found in pages 13-17
	Pownal Economic Development Goal #2: Provide, strengthen, and enhance a sustainable economy that attracts investment, increases the tax base, creates productive and satisfying employment opportunities, generates public revenues, and continually seeks economic growth opportunities that improve the quality of life for our residents while preserving the natural beauty and environmental quality of Pownal.	
	Pownal Economic Development Goal #3: Enhance Pownal’s appeal as a seasonal and tourist destination as well as a profitable destination for businesses to locate and for prospective residents to live.	
	Pownal Economic Development Goal #4: Support art and cultural activities including both local artists and connections with regional art and cultural institutions.	
	Pownal Economic Development Goal #5: Support art and cultural activities including both local artists and connections with regional art and cultural institutions.	
	Pownal Housing Goal 1: Ensure the availability of safe, affordable, livable, long-term housing for all Pownal residents that satisfies the diverse needs of the community, manages growth, minimizes energy consumption and environmental impacts, and is compatible adjacent and nearby uses.	Objectives and actions can be found in pages 20-23

Exhibit A. Index of actions for major sections		
Section	Goals	Objectives and Actions
	<p>Pownal Housing Goal 2: Plan new housing development with due regard to traditional settlement patterns, natural resources, and current or planned public and private services such as roads, utilities and other infrastructure. All development shall be compatible with adjacent and nearby uses, with due regard given to the purpose and goals of the district within which it is proposed. This includes compatibility with historic context and existing architecture.</p>	
Section 4.0 Natural Resources	<p>Pownal Natural Resource Goal 1: Discourage development that encroaches upon or adversely impacts unique natural features; and to pursue land-use policies and development plans that are harmonious with wildlife species and their habitats, recognizing and committing to protect the full range of habitats and species in the Town.</p>	Objectives and actions can be found in pages 40-44 and pages 47-48
	<p>Pownal Natural Resource Goal 2: Support policies and new developments that protect and maintain the rural character of Pownal, with special attention to preserving the Town’s prime agricultural soils and historically farmed lands and to promoting the general health, safety, and welfare of the public.</p>	
	<p>Pownal Natural Resource Goal 3: Encourage land development that avoids or minimizes impacts to physical constituents of the land (such as soils, surface and groundwater, naturally existing drainage areas, etc.), and the ecosystems and species they support (forests, natural communities, etc.), with particular attention to rare and endangered species.</p>	

Exhibit A. Index of actions for major sections		
Section	Goals	Objectives and Actions
	Pownal Flood Resiliency Goal: To (1) increase the public’s awareness about the harmful impacts of flooding and erosion, and work with property owners at greatest risk to implement measures to reduce their potential harm from flood hazards and damage; (2) ensure that the Town and its critical facilities can withstand and/or can be repaired or replaced following flood events; and (3) guarantee that the Town can receive the maximum funding available in the event of the next federally declared disaster.	Objectives and actions can be found in pages 44-47
Section 5.0 Land Use	Pownal Land Use Goal #1: Provide for a mix of residential, commercial, industrial and public uses to provide for economic development, a safe and efficient transportation system, and continued viability of natural resources that provide critical ecosystem services to the Town.	Objectives and actions can be found on pages 49- 53 along with district descriptions
	Pownal Land Use Goal #2: Promote development within the Village districts so as to avoid sprawl.	
Section 6.0 Transportation	Pownal Transportation Goal 1: Roads, pedestrian pathways, bicycle paths and other parts of the transportation system should provide safe transportation system to serve vehicles, bicycles and pedestrians that is appropriate to the Town's present and expected growth.	Objectives and actions can be found on pages 56-58
	Pownal Transportation Goal 2: Pownal should maintain and upgrade the existing road network to the level necessary for operation in an economically and environmentally sound way and ensure that appropriate road, culvert, and bridge standards are adopted to guide these upgrades, enhance water quality, increase flood resiliency, and allow for aquatic passage and terrestrial animal movement.	
	Pownal Facilities Goal 1: Town operated and managed facilities and services, should be sufficient to maintain town infrastructure, including roads, the wastewater treatment plant and the transfer station.	Objectives and actions can be found on page 61

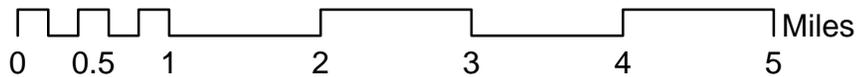
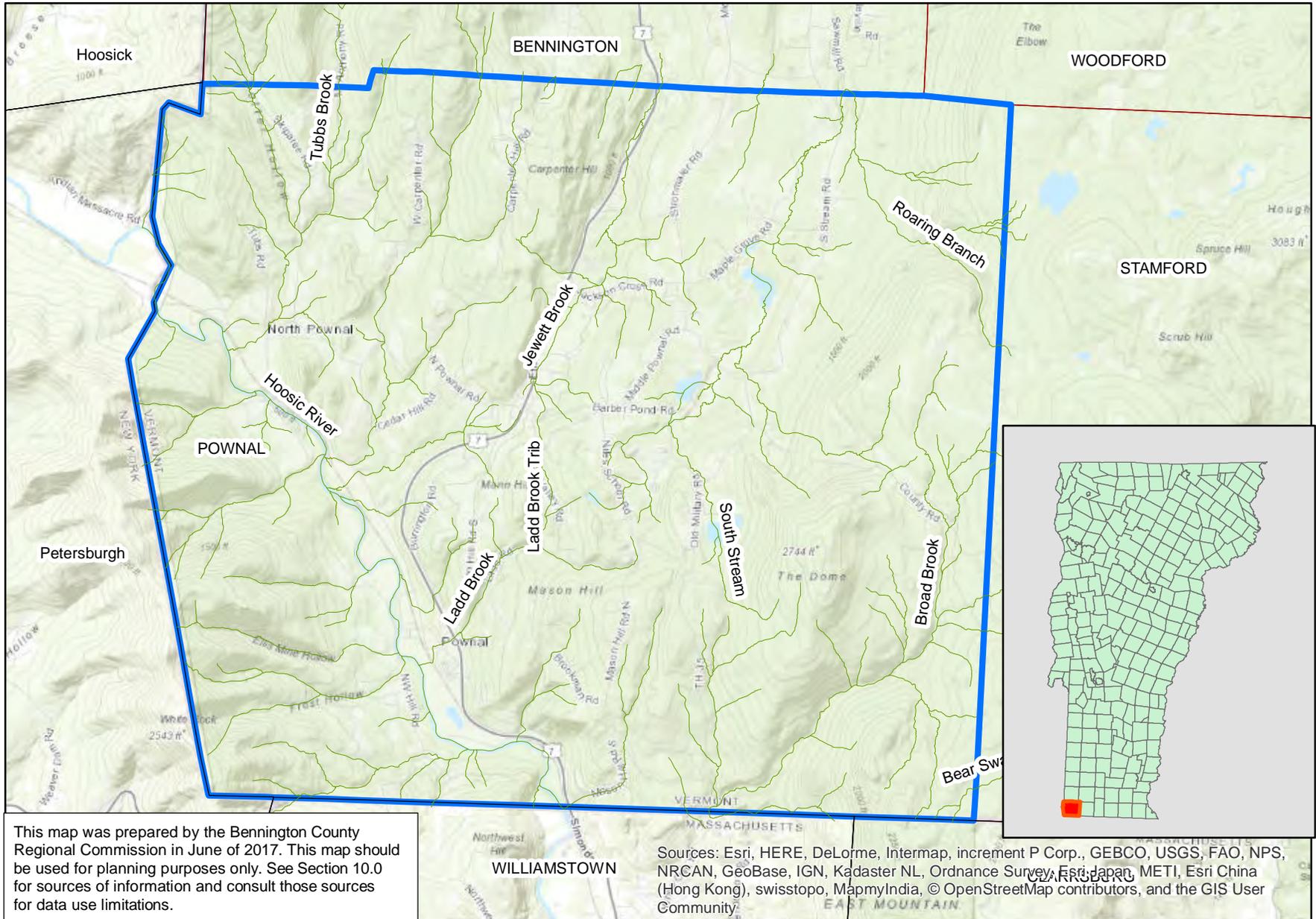
Exhibit A. Index of actions for major sections		
Section	Goals	Objectives and Actions
Section 7.0 Community Facilities, Services and Utilities	Pownal Facilities Goal 2: Pownal should continue to participate in and support public and private organizations that work to provide health and social services and natural resource protection.	
	Pownal Education Goal 1: Support the early child care facilities within the Town	Objectives and actions can be found on page 62-64
	Pownal Education Goal 2: Encourage participation by adults within Pownal in educational and vocational opportunities	
	Pownal Recreation Goal: The Town should provide improve recreation opportunities for its citizens.	Objectives and actions can be found on page 65-66
Section 8.0 Energy	Pownal Energy Goal 1: Encourage residents, businesses and institutions in Pownal to conserve energy by implementing a long-term education and outreach programs to encourage energy conservation and fossil fuel reduction.	Objectives and actions can be found on pages 81-82
	Pownal Energy Goal 2: Reduce the use of fossil fuels for both heating and transportation.	Objectives and actions can be found on pages 82-83
	Pownal Energy Goal 3: Promote compact development in the three villages, with low-density uses and conservation emphasized in outlying areas so as to promote conservation of energy (see Land Use Goal #2).	Objectives and actions can be found on page 84

Exhibit A. Index of actions for major sections		
Section	Goals	Objectives and Actions
	<p>Pownal Energy Goal #4: Identify suitable areas for wind, solar, biomass and hydroelectric generation while protecting natural resources as described in Section 4.0 and avoiding inappropriate locations including but are not limited to:</p> <ul style="list-style-type: none"> • known and potential constraints listed in Section 8.4 • Riparian Wildlife Corridors and High Priority Surface and Riparian Areas described in Section 4.0 • Areas within 1,000 meters of residences identified by the Bennington County Regional Commission as unsuitable for commercial wind facilities • 	Objectives and actions can be found on pages 85-

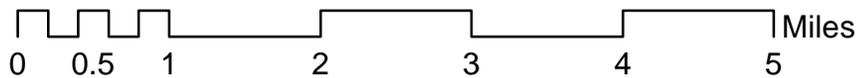
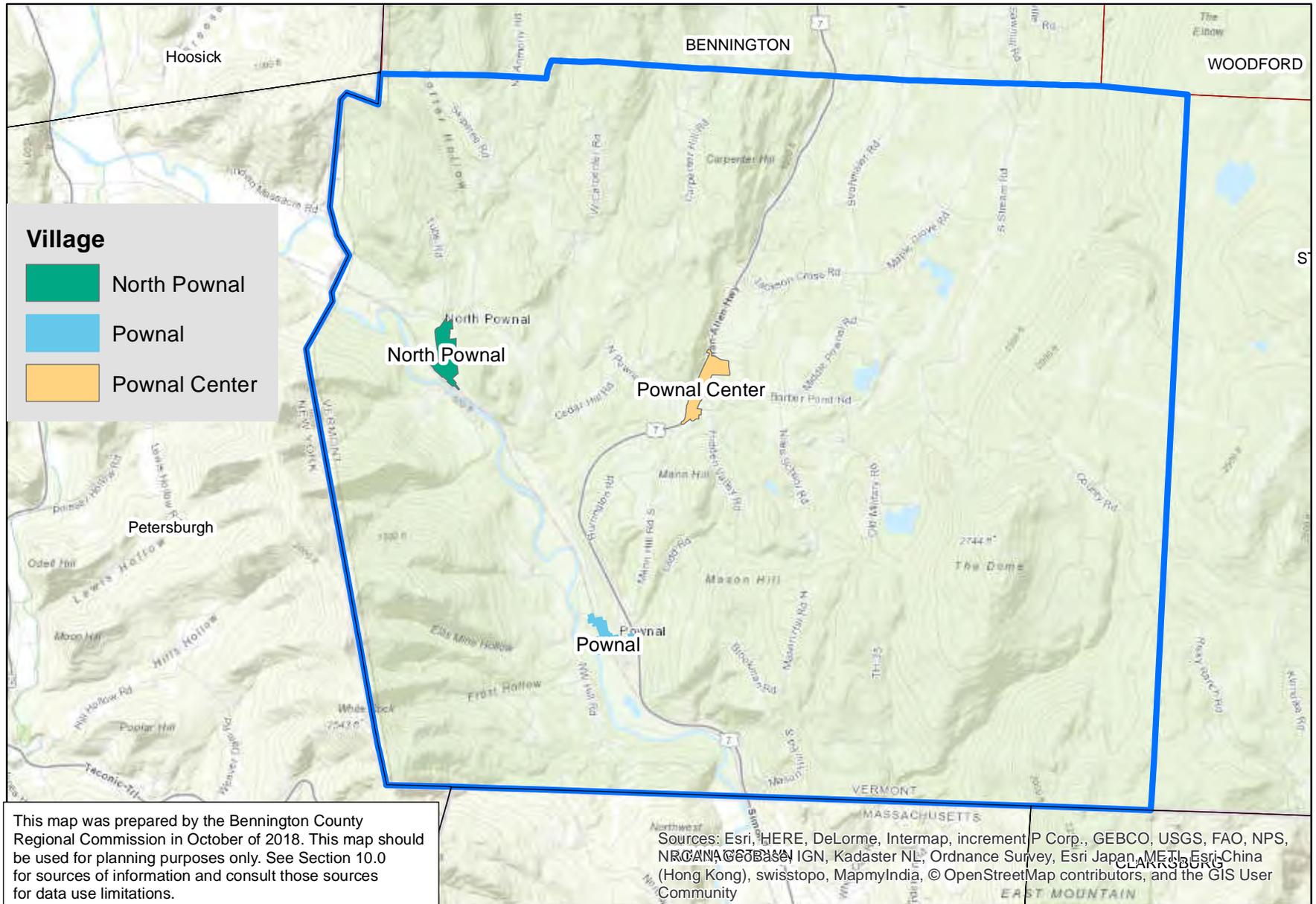
Exhibit B: List of Maps (maps are located at the end of the document)

- Map 1. Town of Pownal, Vermont
- Map 2. Town of Pownal Village Centers
- Map 3. Bedrock and Surficial Geology
- Map 4. Slope and Elevation
- Map 5. Pownal Soil Characteristics
- Map 6. Land Cover Types
- Map 7. Terrestrial and Aquatic Systems
- Map 8. Flood Zones, River Corridors and Surface Waters
- Map 9. Unique Natural Features
- Map 10. Pownal Land Use Designations
- Map 11. Pownal Transportation Map
- Map 12. Landslide Potential and Rockfalls
- Map 13. Town Facilities and Public Water Sources
- Map 14. Open Space Lands
- Map 15. Potential and Existing Energy Sources
- Map 16. Potential Solar Energy Given Known and Potential Constraints
- Map 17. Preferred Solar Sites
- Map 18. Potential Wind Resources and Constraints

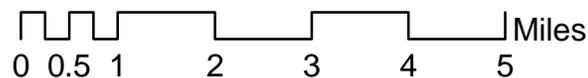
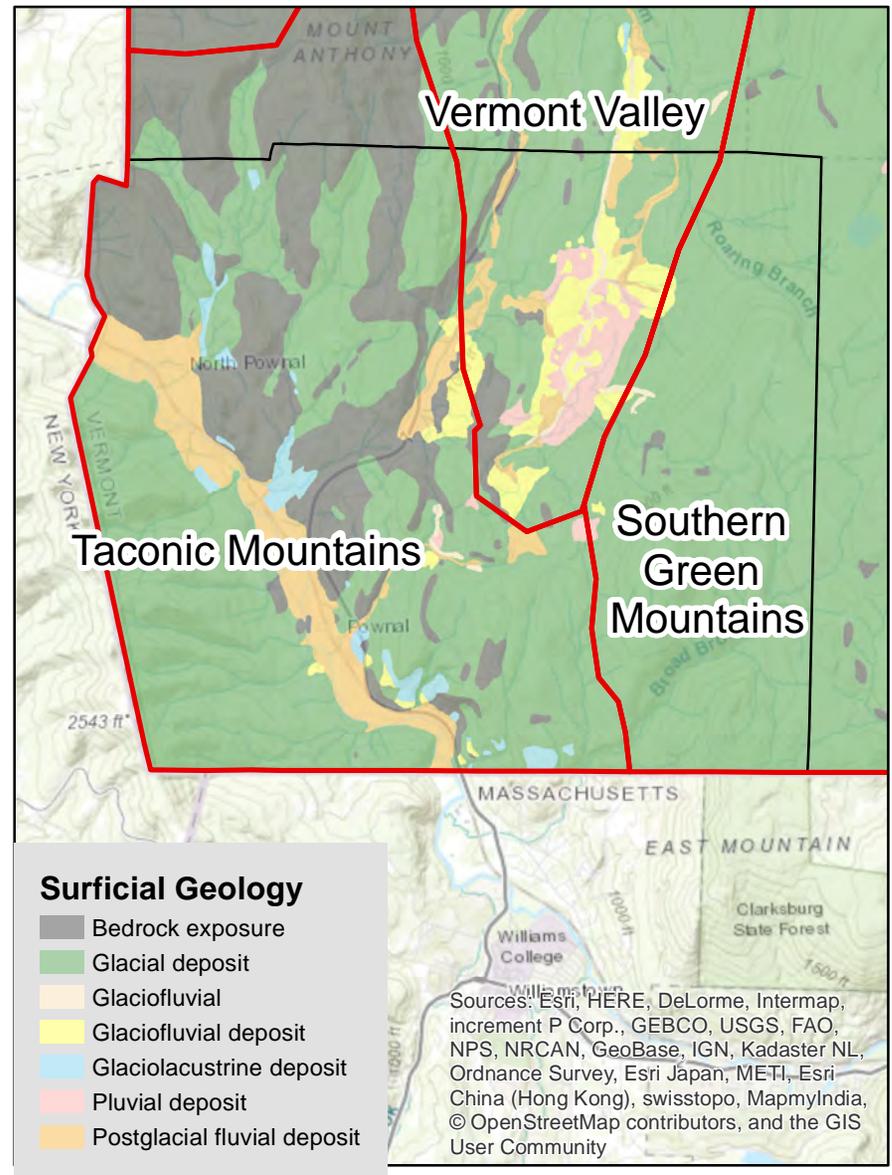
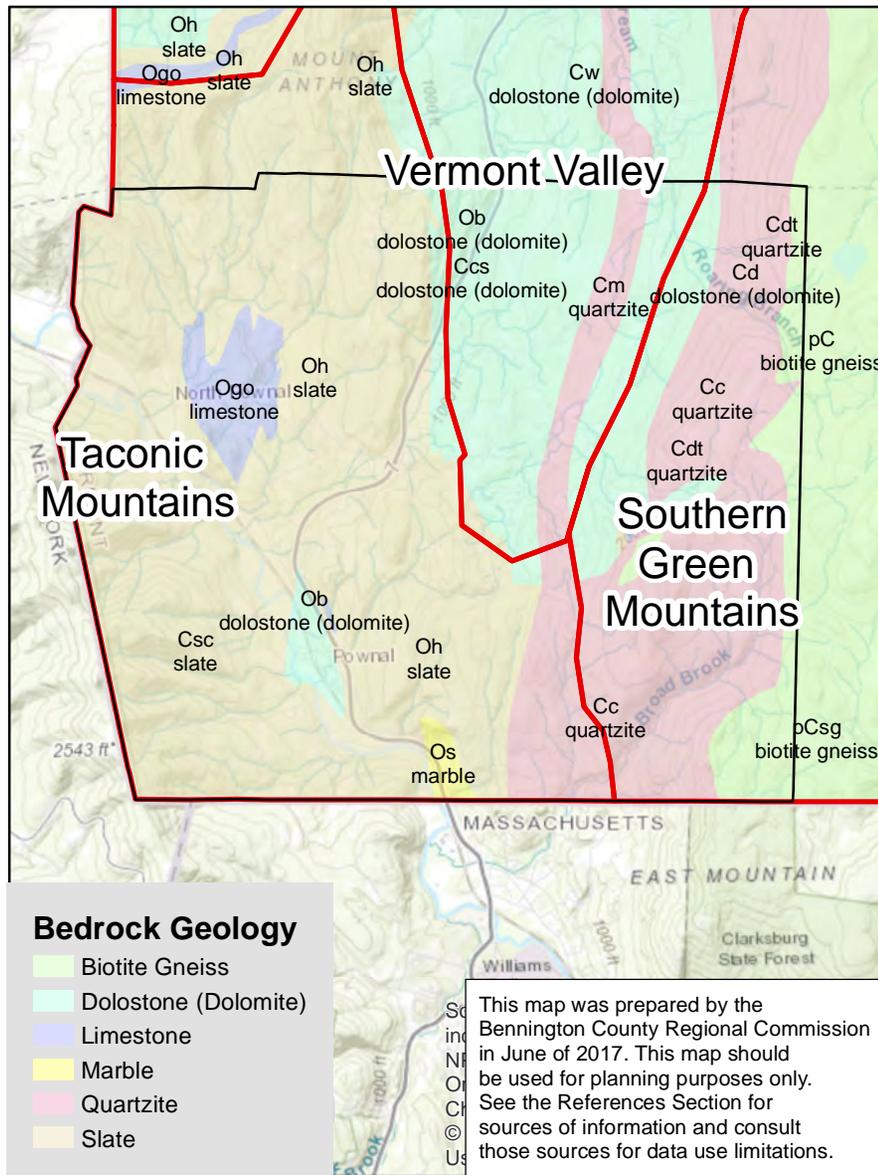
Map 1. Town of Pownal, Vermont



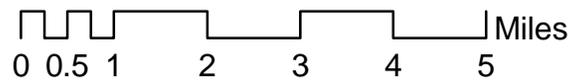
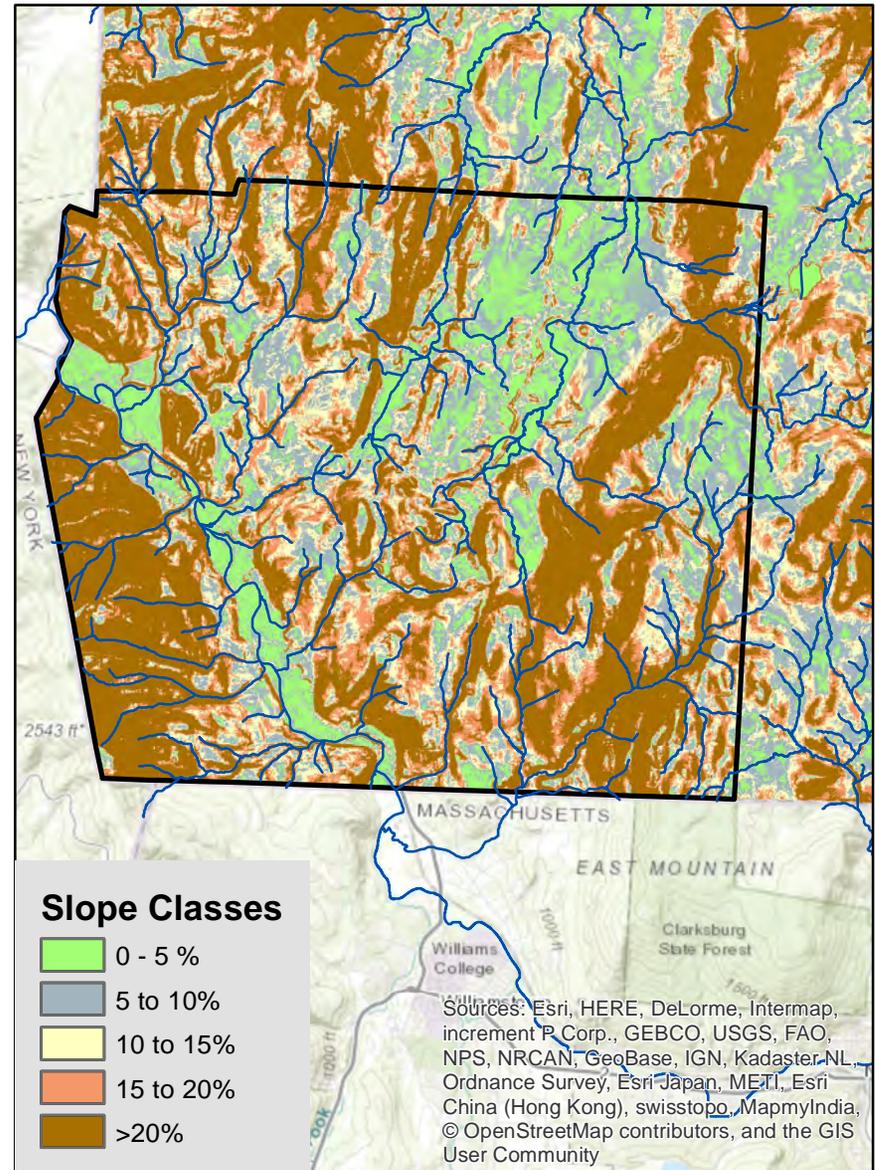
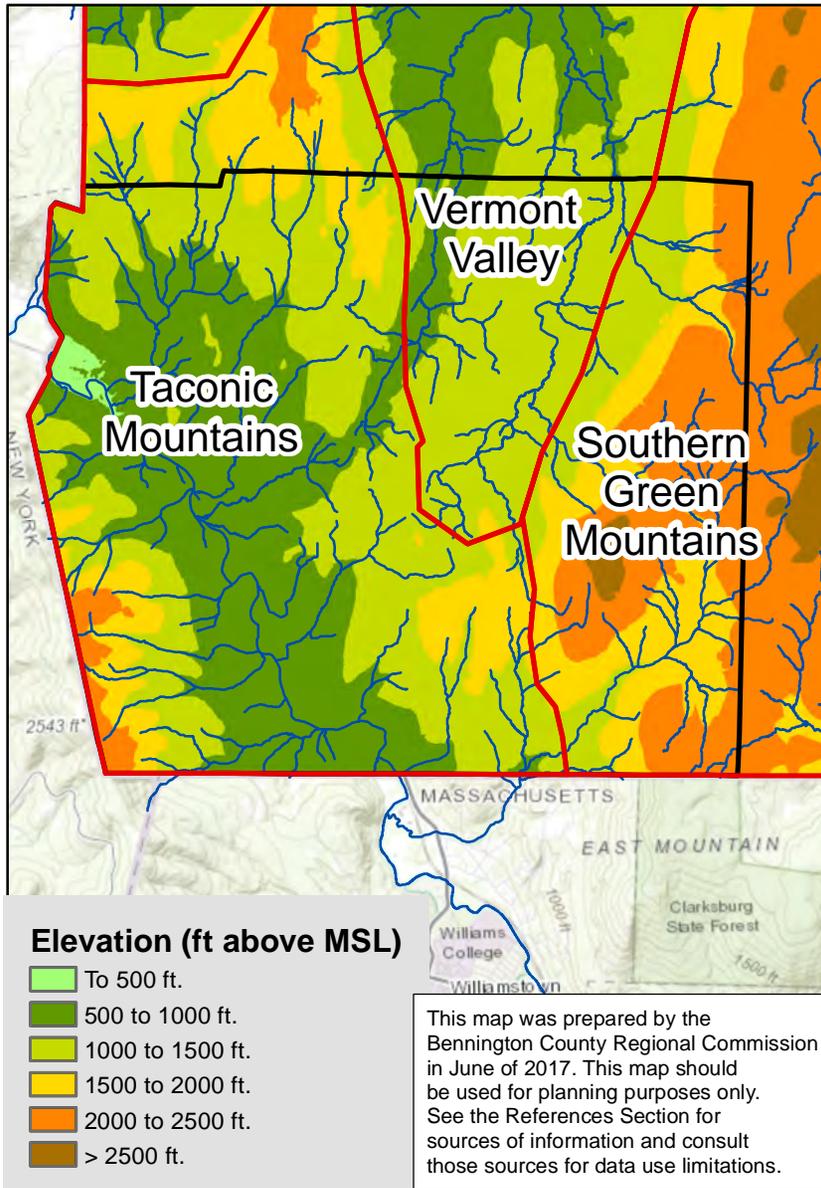
Map 2. Town of Pownal Villages



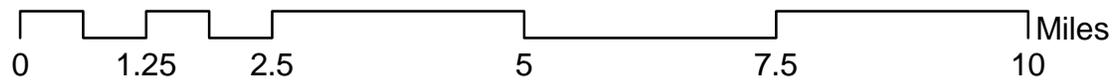
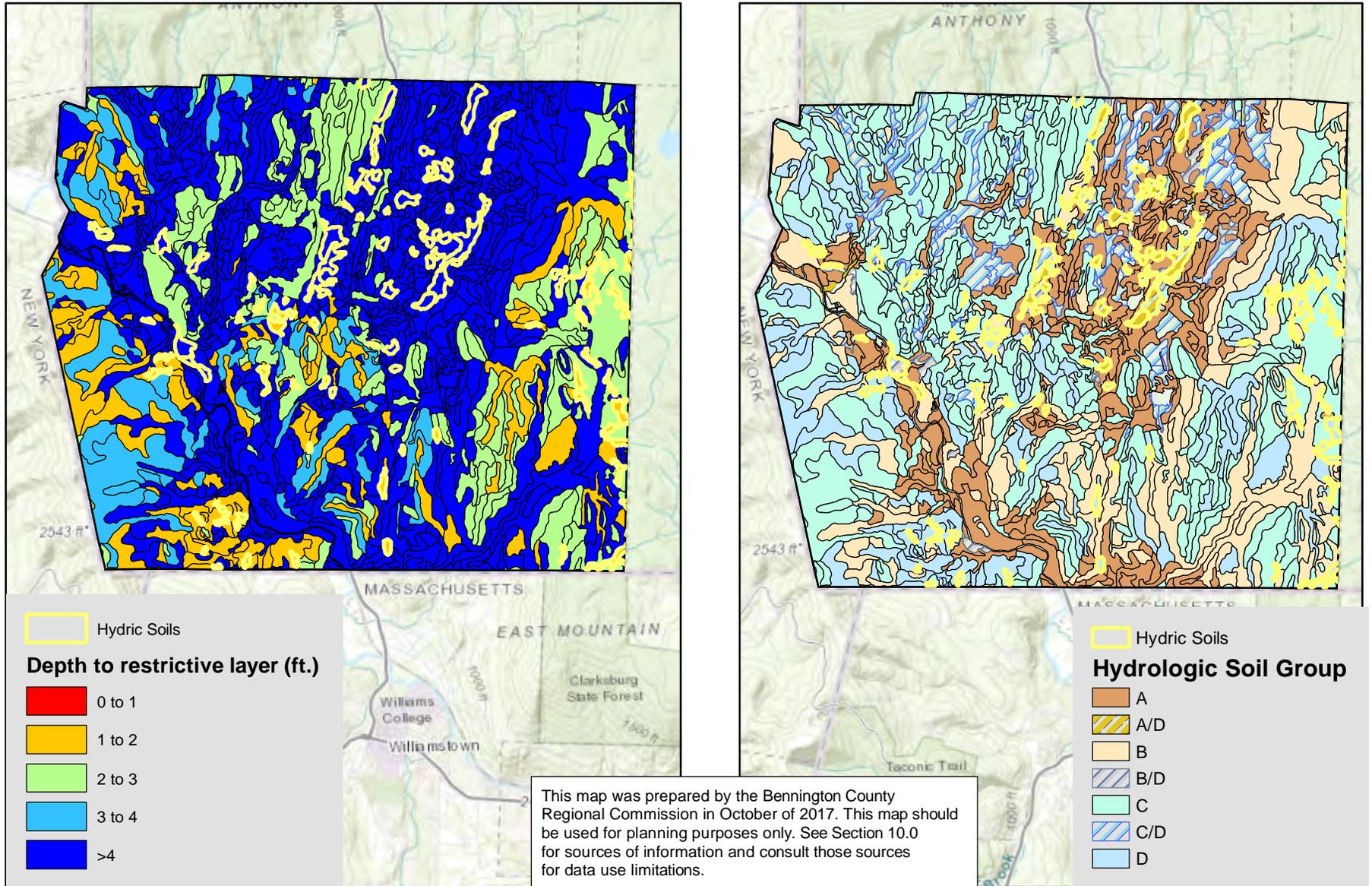
Map 3. Bedrock and Surficial Geology of Pownal



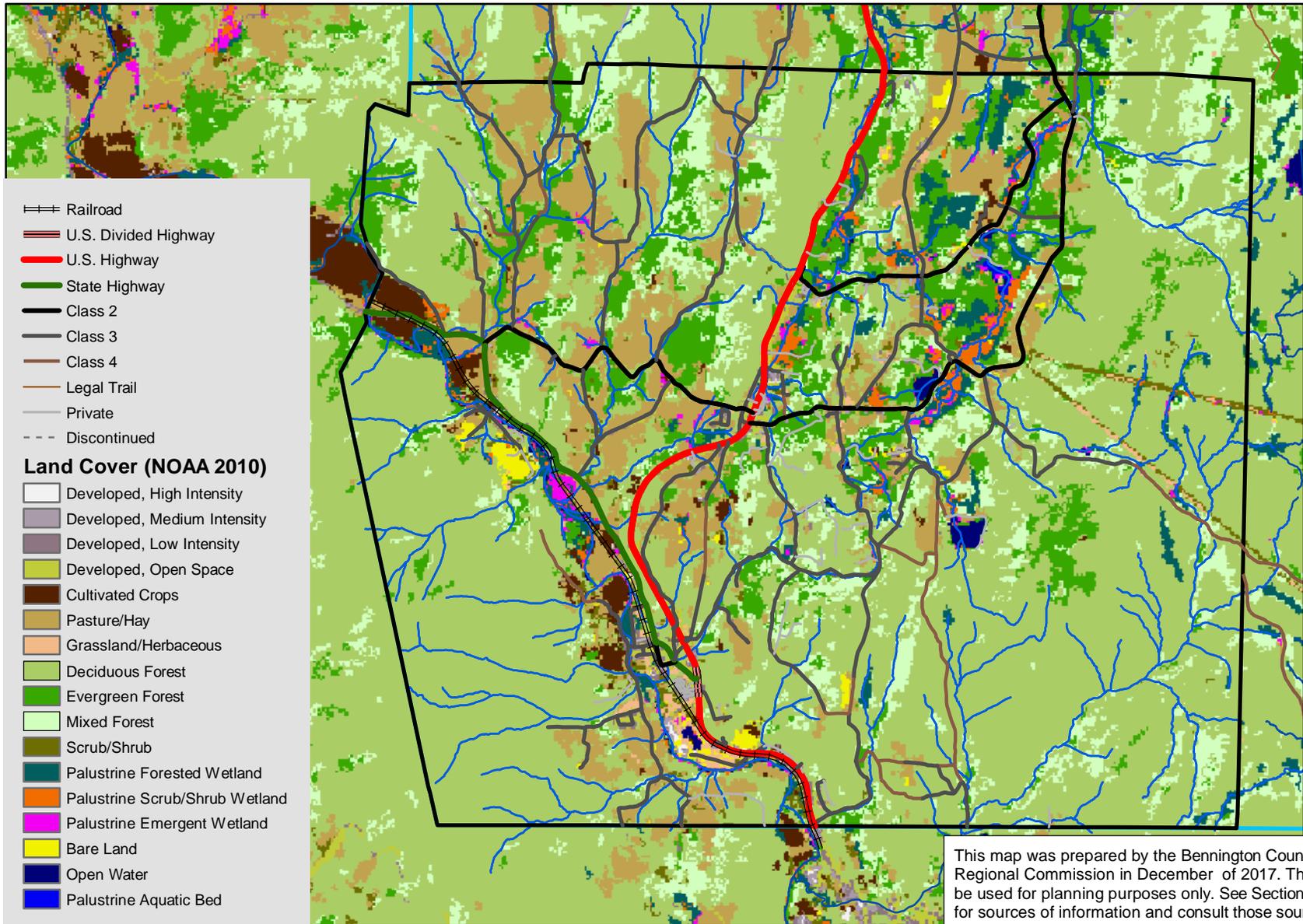
Map 4. Slope and Elevation



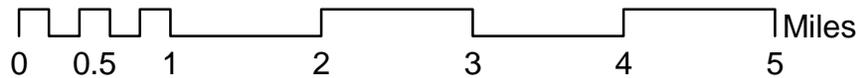
Map 5. Pownal Soil Characteristics



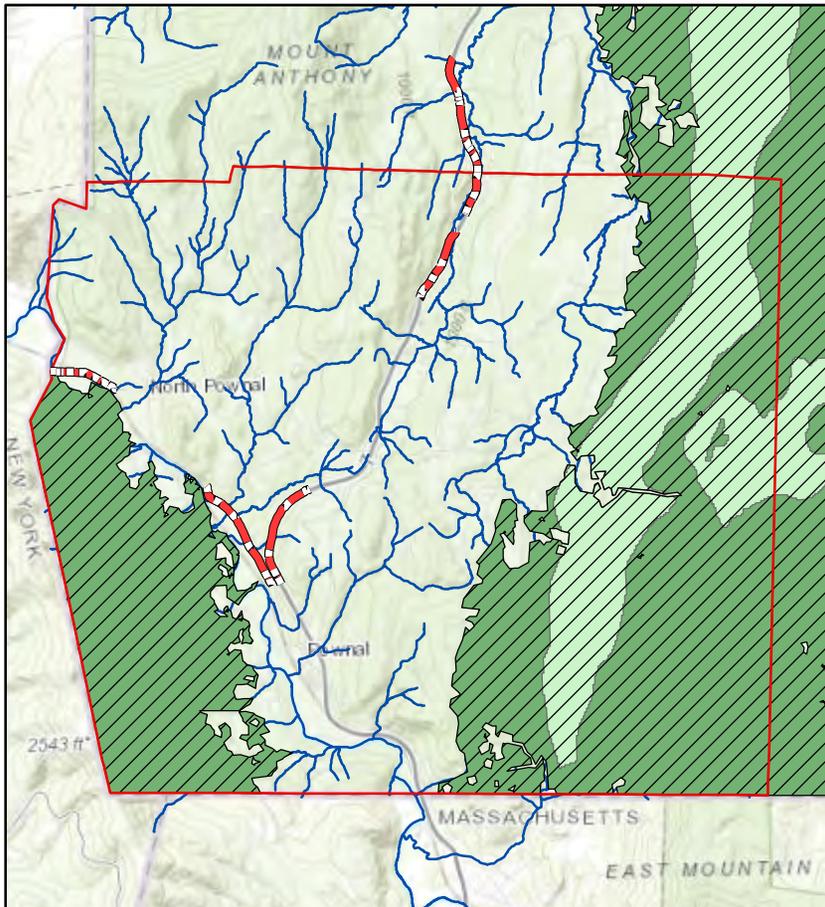
Map 6. Land Cover Types



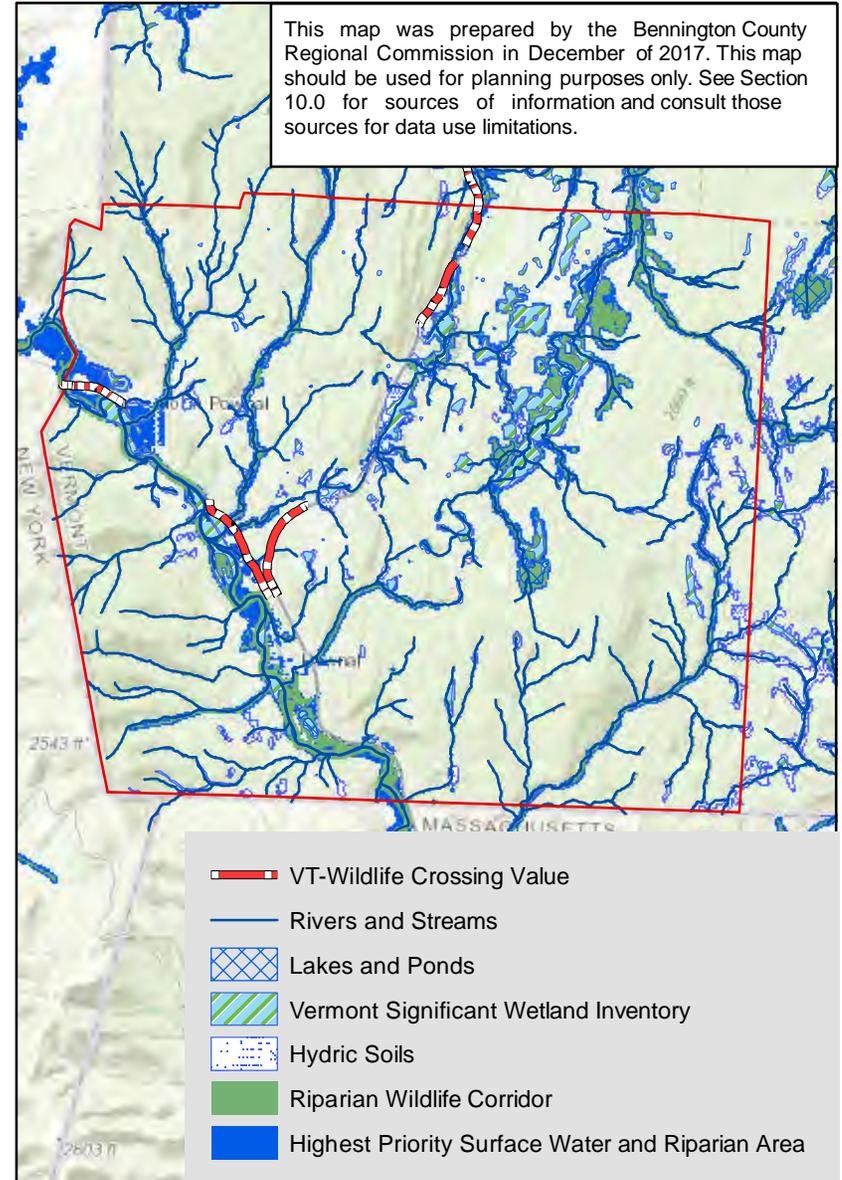
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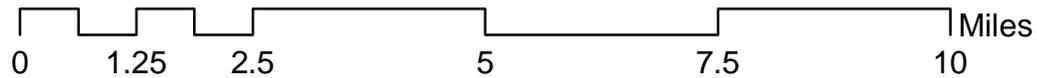
Map 7. Terrestrial and Aquatic Systems



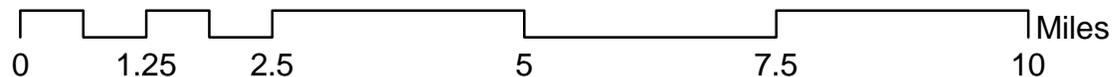
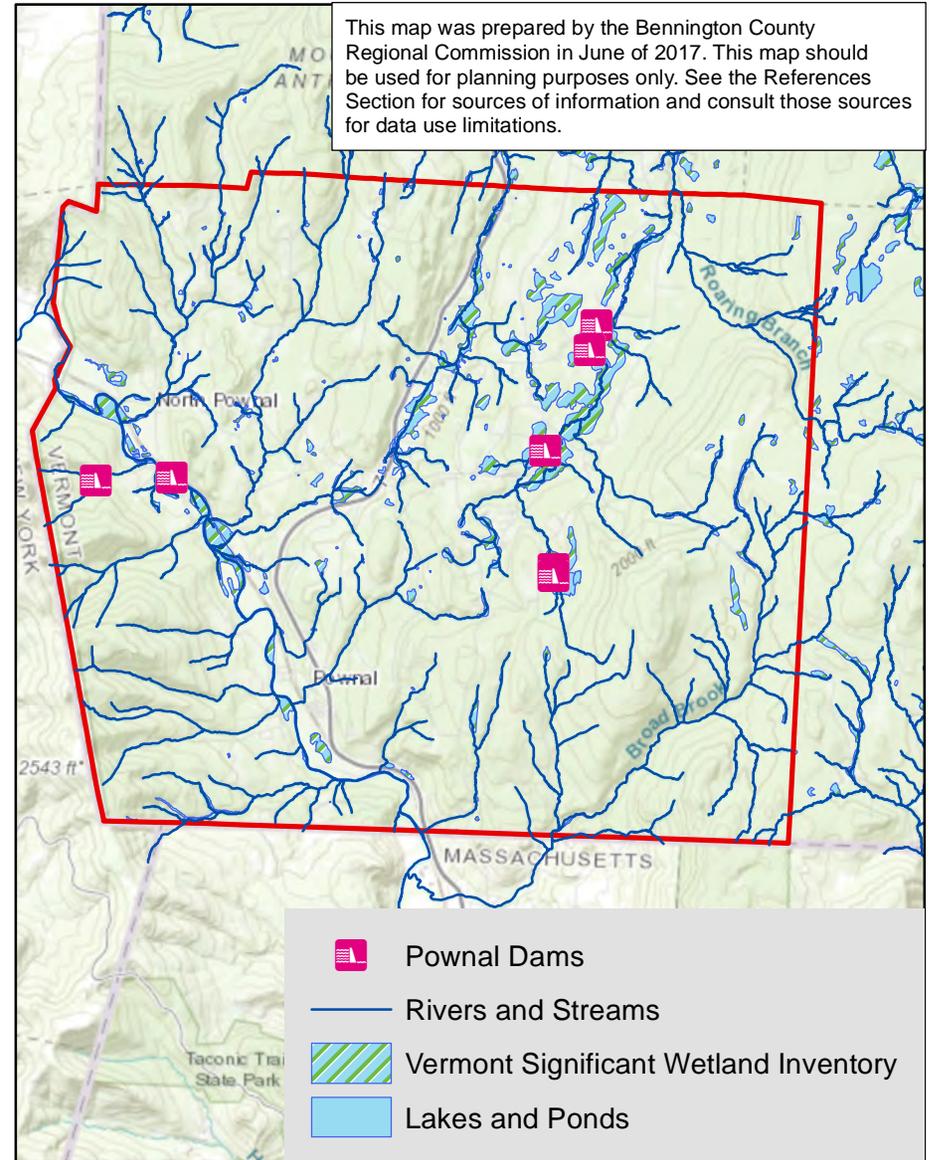
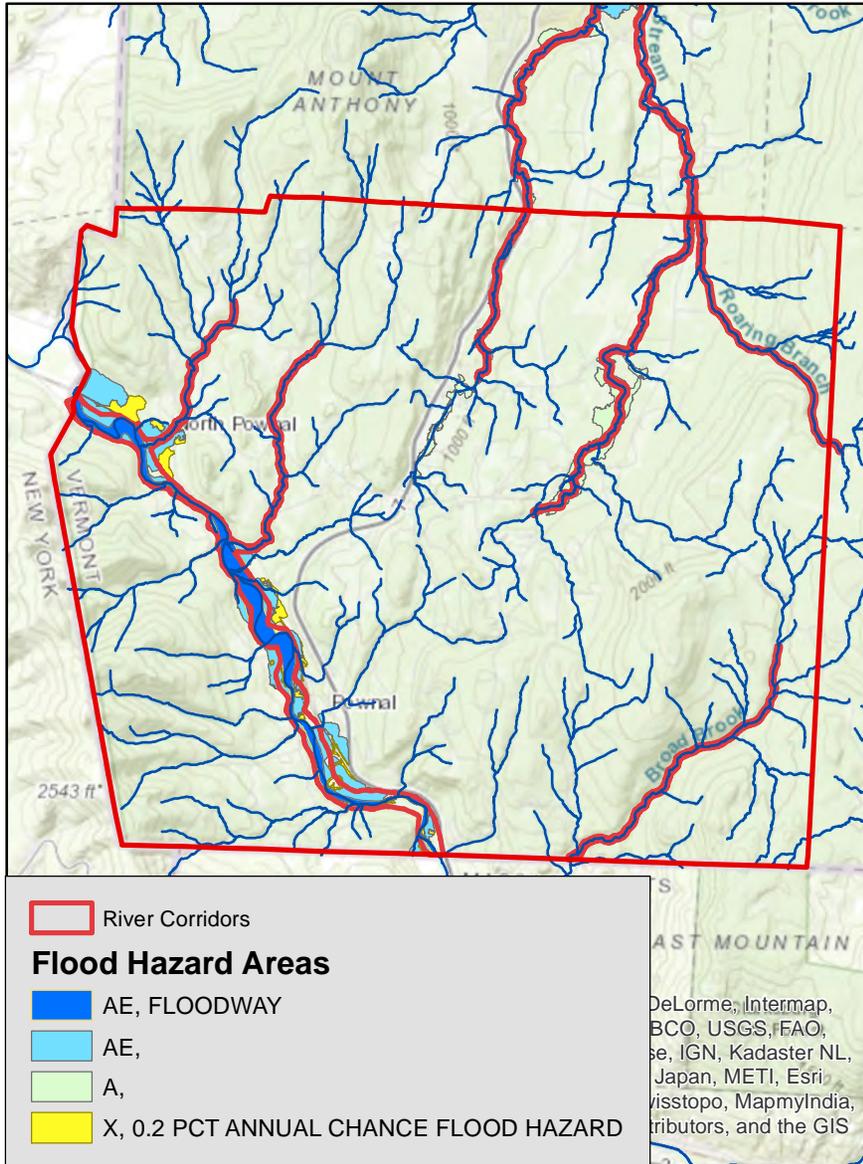
-  VT-Wildlife Crossing Value
-  VCD2a - Highest Priority Connectivity Blocks
-  VCD5 - Physical Landscape Diversity Blocks
-  VCD1a - Highest Priority Interior Forest Blocks



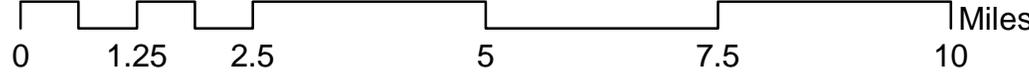
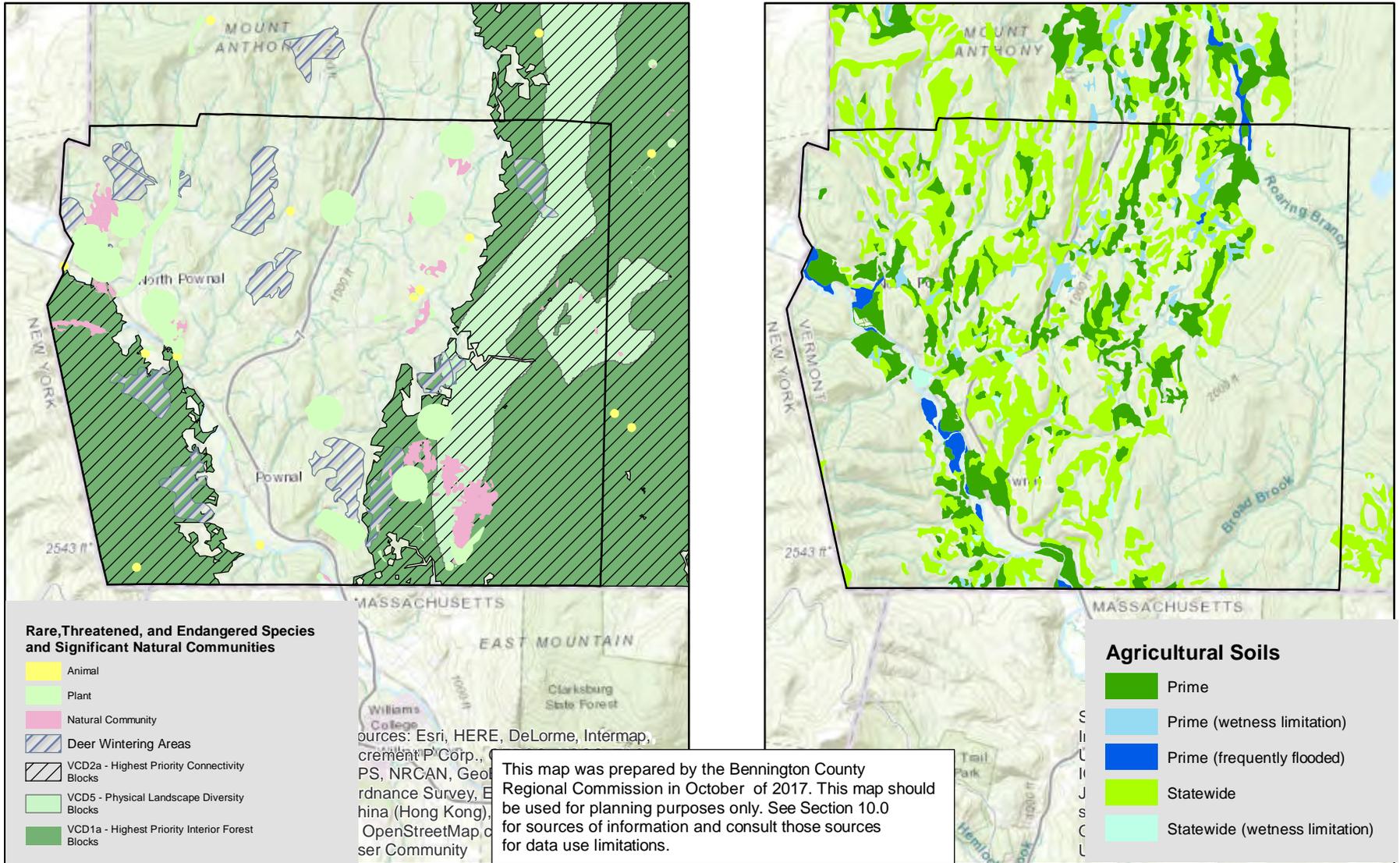
-  VT-Wildlife Crossing Value
-  Rivers and Streams
-  Lakes and Ponds
-  Vermont Significant Wetland Inventory
-  Hydric Soils
-  Riparian Wildlife Corridor
-  Highest Priority Surface Water and Riparian Area



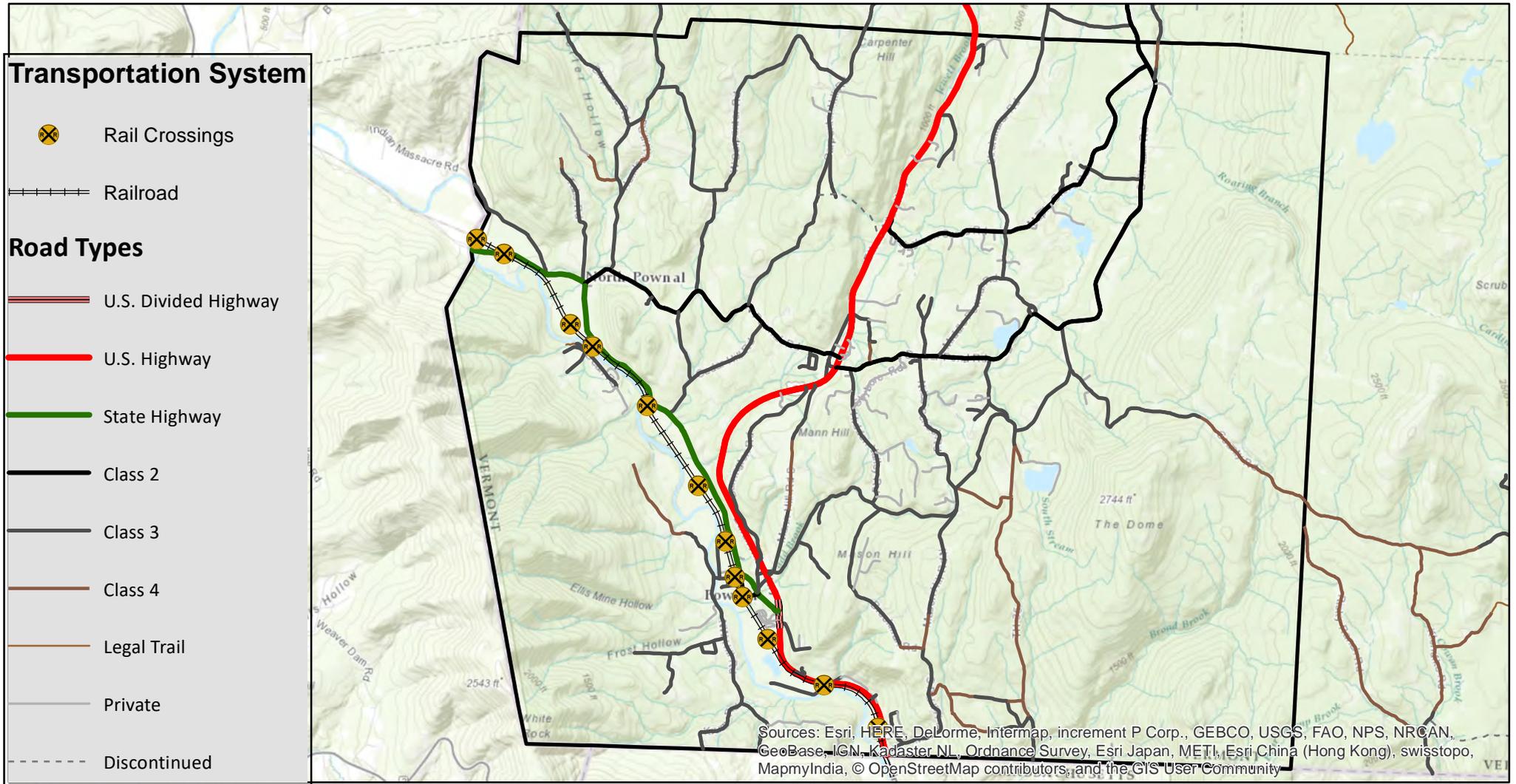
Map 8. Flood Zones, River Corridors and Surface Waters



Map 9. Unique Natural Features and Agricultural Soils



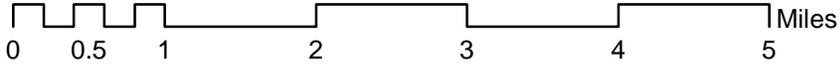
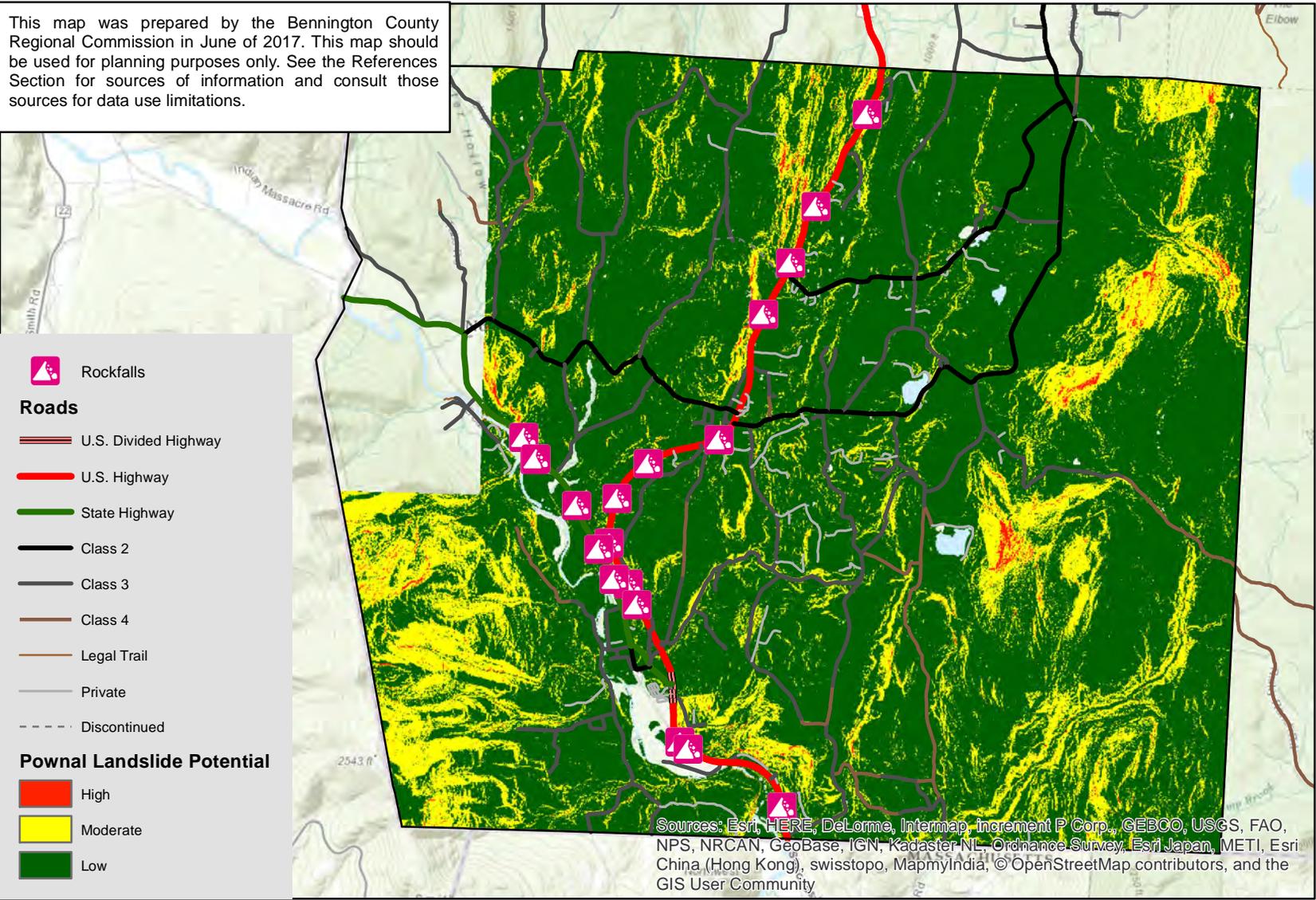
Map 11. Pownal Transportation Map



This map was prepared by the Bennington County Regional Commission in June of 2017. This map should be used for planning purposes only. See the References Section for sources of information and consult those sources for data use limitations.

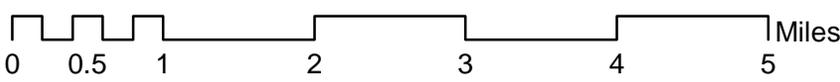
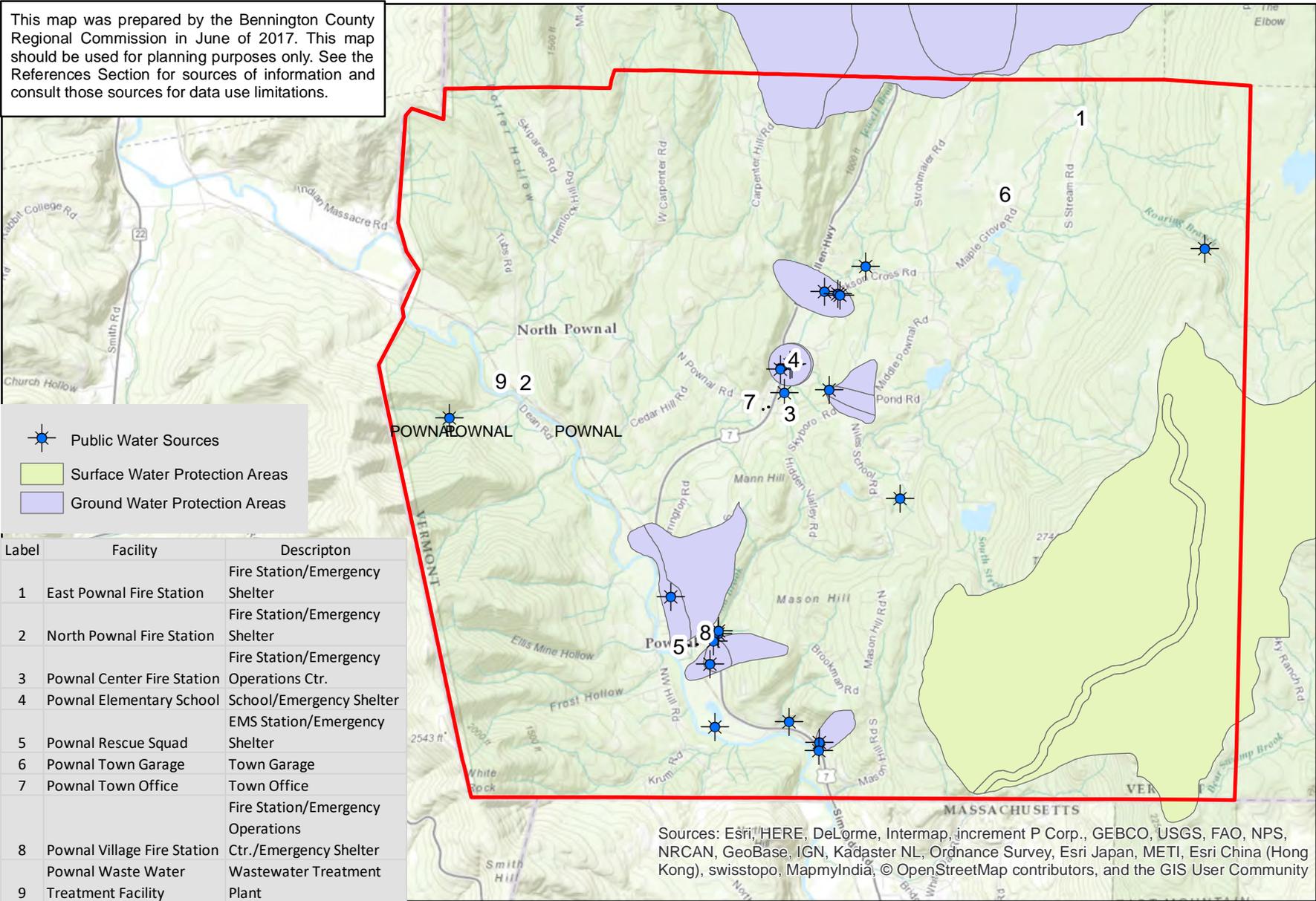
Map 12. Landslide Potential and Rockfalls

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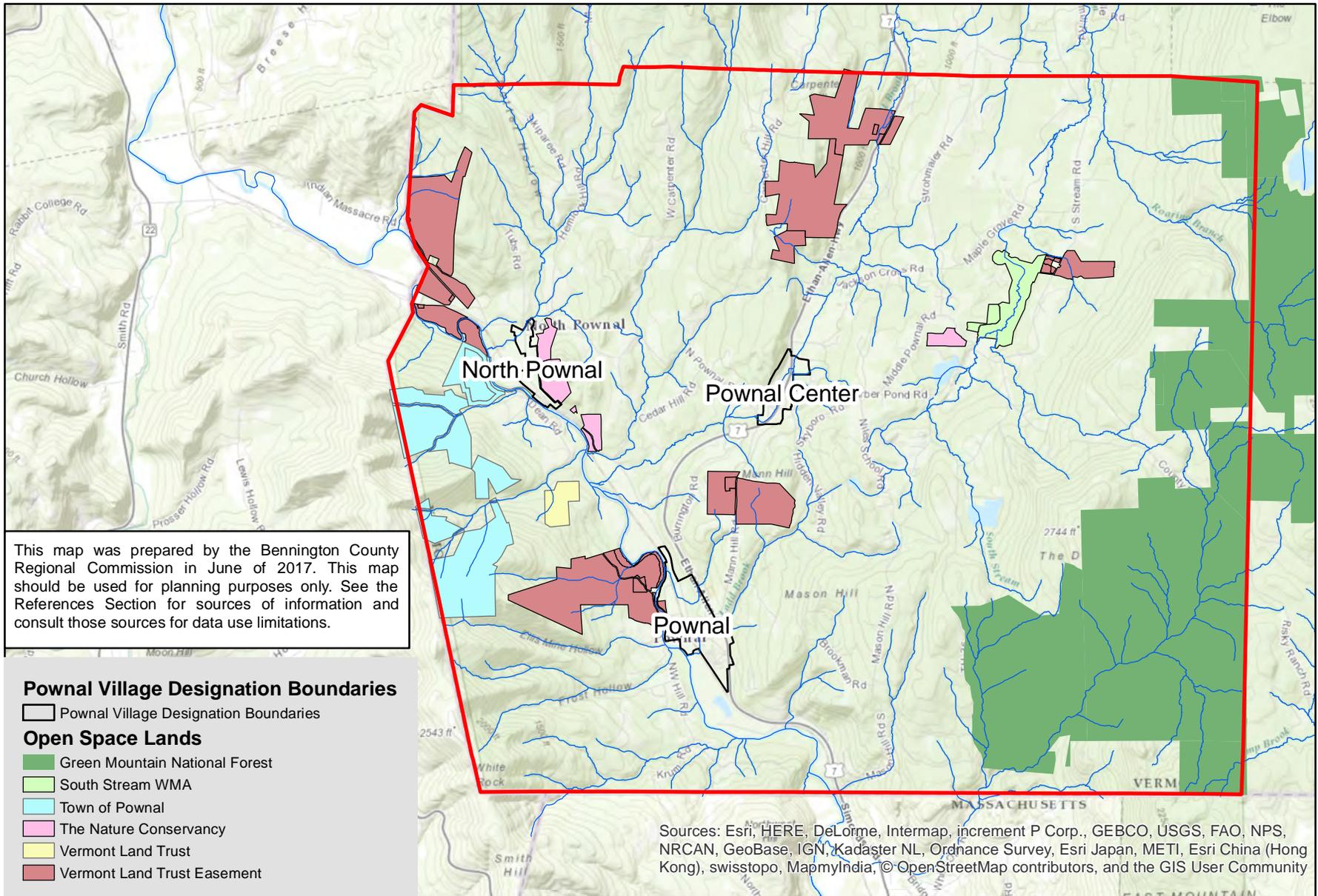


Map 13. Town Facilities and Public Water Sources

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Map 14. Open Space Lands



Map 15. Existing and Potential Energy Sources

Pownal Energy Sites

-  Existing Hydroelectric
-  Potential Solar
-  Existing Solar Electric

 Three Phase Transmission Line

 One-mile Buffer

Potential Utility Scale Wind

 70 m Hub Height

Pownal Wind

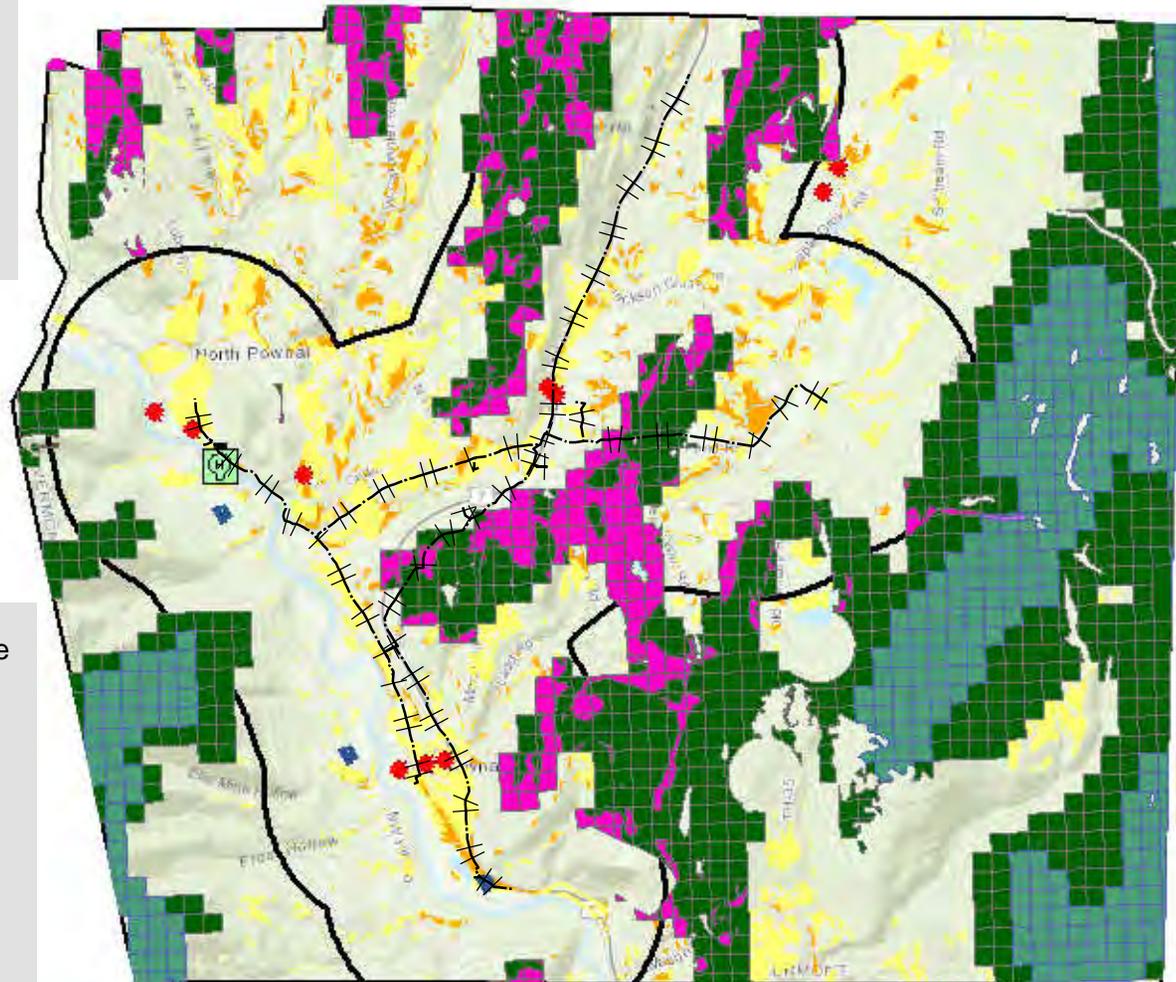
 No Constraint

 Possible Constraint

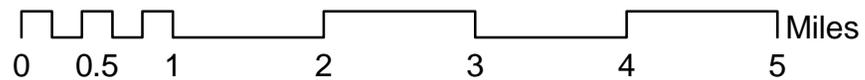
Pownal Solar

 No Constraint

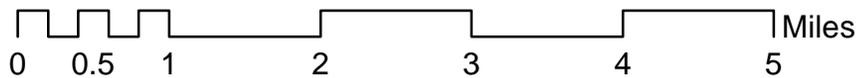
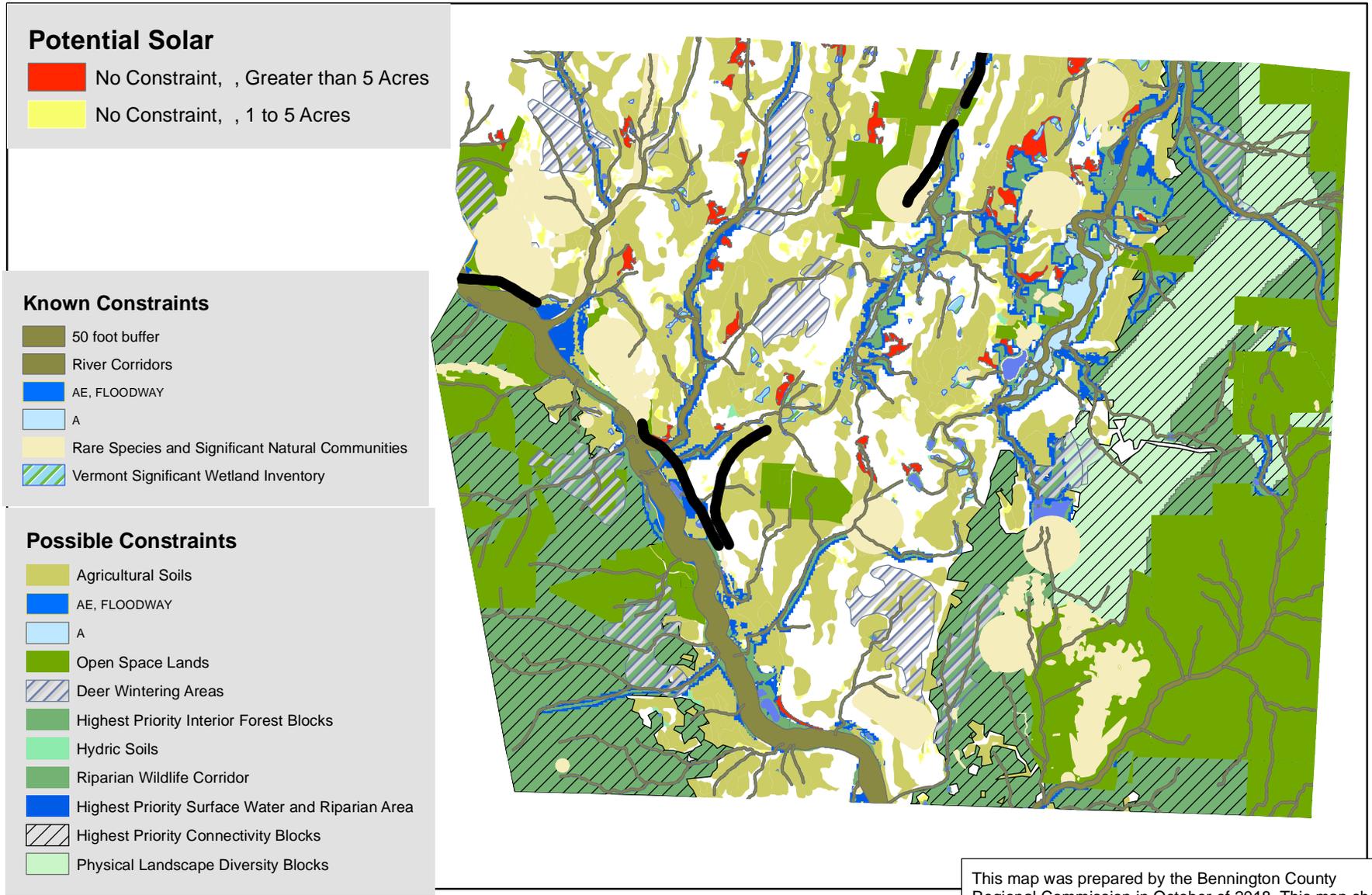
 Possible Constraint



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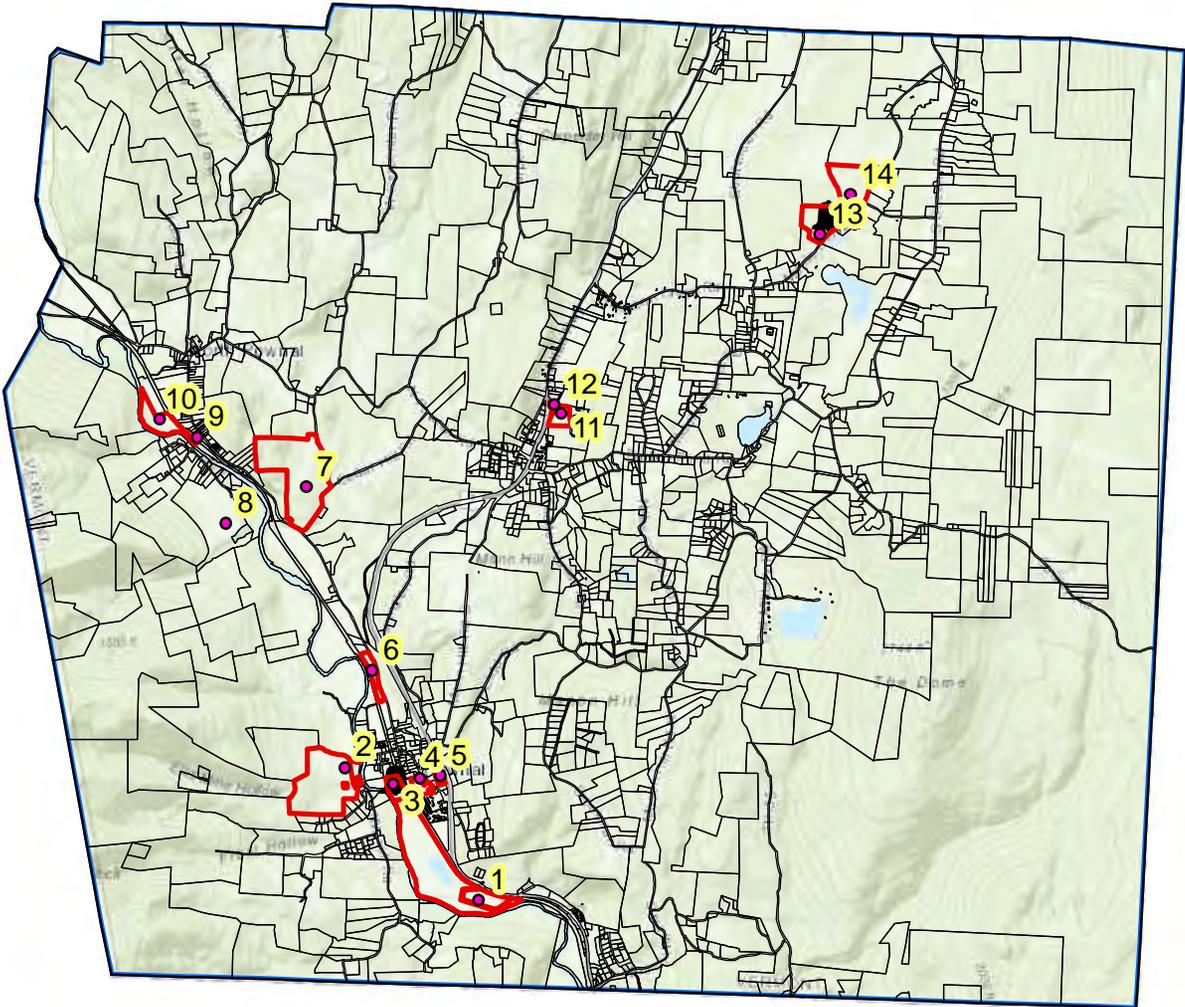


Map 16. Potential Solar Energy Given Known and Potential Constraints



This map was prepared by the Bennington County Regional Commission in October of 2018. This map should be used for planning purposes only. See Section 12.0 for sources of information and consult those sources for data use limitations.

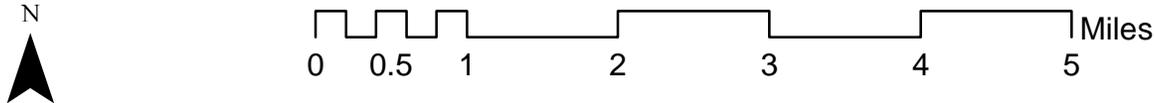
Map 17. Preferred Solar Sites



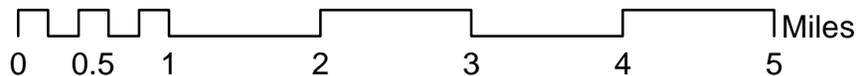
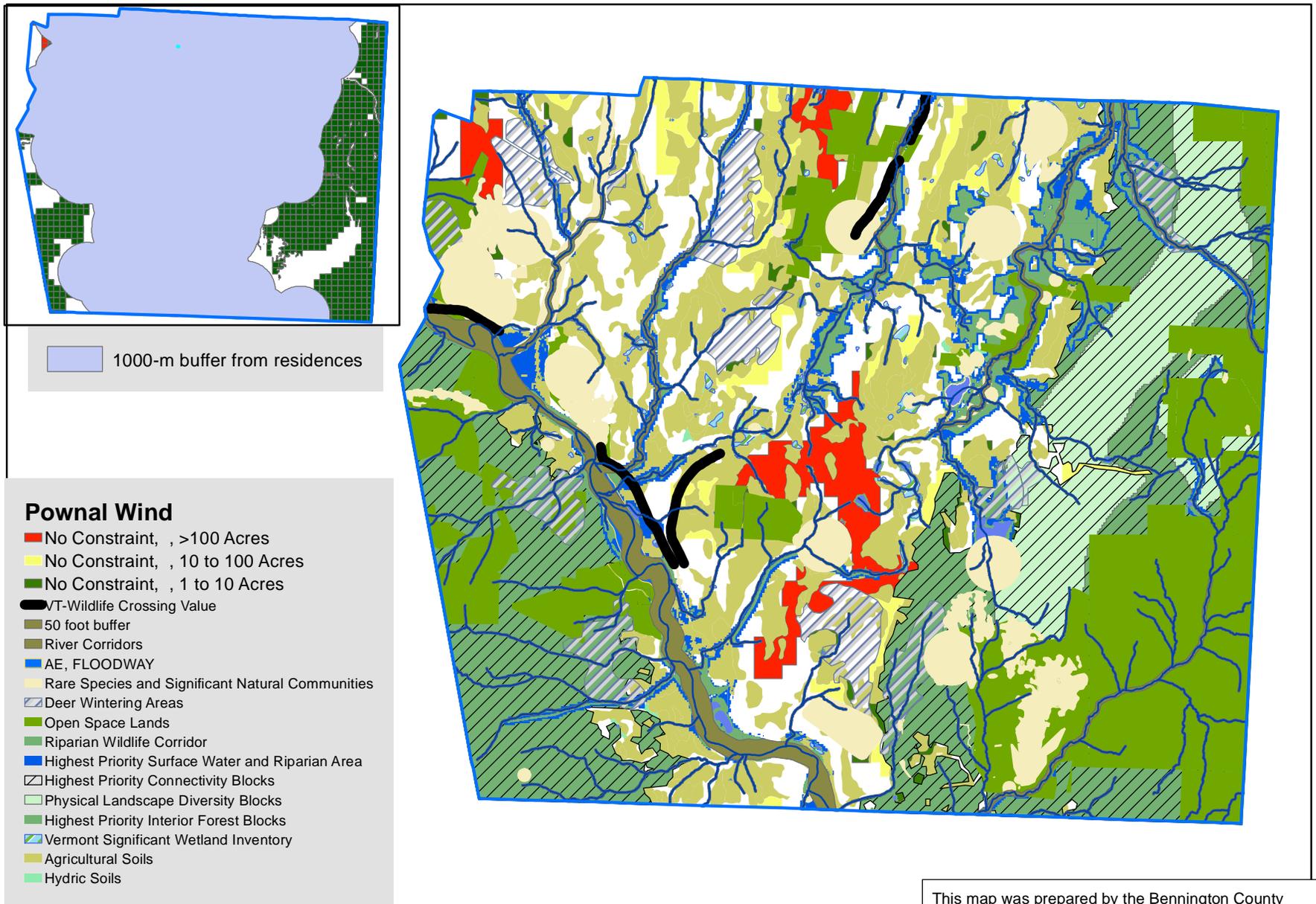
Label	Site	Type
1	Racetrack	Existing Solar/Potential Expansion
2	Nothwest Hill Rd.	Existing Solar/Potential Expansion
3	Pownal Wastewater Treatment Plant	Potential Solar
3	TAM	Rooftop Solar
4	Pownal Protective Fire Association	Potential Solar
5	American Legion	Potential Solar
6	Mack Molding	Rooftop Solar/Brownfield
7	Cleeland	Potential Solar
8	Dean Road Barlow Pit	Existing Solar/Potential Expansion
9	Pownal Town Barn	Rooftop Solar
10	Town Treatment Plant/Former Tannery	Potential Solar/Superfund Site
11	Pownal Elementary	Rooftop Solar
12	Oak Hill School	Rooftop Solar
13	Town Landfills (capped and uncapped)	Potential Solar
14	Town Highway Department	Potential Solar

This map was prepared by the Bennington County Regional Commission in October of 2018. This map should be used for planning purposes only. See Section 12.0 for sources of information and consult those sources for data use limitations.

Preferred sites include building where rooftop solar would be possible as well as parcels where existing solar arrays could be expanded or new ones created.



Map 18. Potential Wind Resources and Constraints



This map was prepared by the Bennington County Regional Commission in April of 2018. This map should be used for planning purposes only. See Section 12.0 for sources of information and consult those sources for data use limitations.