Berkshire Municipal Plan

Prepared by the Berkshire Planning Commission

Adopted
April 26, 2010

ACKNOWLEDGEMENTS

Cover photo: View North from Perley Road,
by George Lochtie

Other photo and art contributions:
Jere Levin
Heather McKeown
Arnold Byam
Loren Doe

Prepared by the Town of Berkshire with assistance from the Northwest Regional Planning Commission

This project was funded by a municipal planning grant from the Vermont Department of Economic, Housing and Community Development

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Town Plan Update Public Forum Photo by NRPC

THE PLANNING PROCESS

A) PURPOSE

The purpose of municipal planning is to provide a basis for local influence in identifying and solving problems, meeting challenges and opportunities, and achieving goals and objectives on behalf of the Town and its citizens. The municipal plan provides the framework and the guidelines upon which to base municipal action regarding the development of housing, industry, and services, and for meeting virtually all community needs. The plan contains the vision of what is considered vital and necessary to the residents of the community, as well as the means for local government to influence the actions of those who look to bring change to the community or its environment. It is planning's function to attempt to direct and coordinate these actions to further the goals of the community, so that all changes promote the general health, safety, and welfare of residents.

B) THE PLANNING PROCESS

The Vermont Municipal and Regional Planning and Development Act (Title 24, Chapter 117) authorizes municipalities to "undertake a comprehensive planning program . . . and to prepare, maintain, and implement a plan within its jurisdiction" (Section 4381). Accordingly, in 1987 the Selectboard of the Town of Berkshire appointed the Berkshire Planning Commission to conduct studies and prepare a comprehensive plan for the Town.

The first attempt to develop a plan for the community was in the early 1970s when the Town adopted interim zoning for two years in recognition of the need for planning. A municipal plan was completed in 1974, but failed to receive voter approval. In 1981, the plan was reintroduced along with a proposed zoning bylaw for the community, but both were defeated. The Town did adopt a Flood Hazard Area Bylaw in 1983 so that Berkshire landowners would be able to obtain flood insurance. This bylaw received voter approval in 1984 and is currently in effect. The Selectboard also approved another year of interim zoning in 1987 in order to give the new Planning Commission time to prepare the municipal plan. The first municipal plan was finally adopted in August of 1989. The Plan has since been revised in 2000, 2005, and now in 2010. The Zoning Bylaws and Subdivision Regulations, including flood hazard regulations, were last updated in 2007 as a unified development ordinance.

The plan itself should be a "living document" which is subject to revision at any time, as needs dictate, and indeed it must be updated and readopted every five years, in accordance with state law. The work of the Berkshire Planning Commission and all other interested citizens will continue in the meantime, as they proceed with the implementation of the plan. This process may include:

- ⇨ the preparation of appropriate bylaws and programs designed to direct the course of future growth and development (e.g., zoning and/or subdivision regulations, an official map, a capital budget and improvement program);

- ⇨ the review of development proposals for conformance with the town plan;

- ⇨ preparation of future studies to identify and plan for specific problems or situations that may arise; and

- ⇨ regular review and revision of the plan, bylaws, and programs to ensure that they reflect changing conditions and needs.

Citizen participation is important at all levels of the planning process. Opportunities for citizen involvement have been assured through community surveys, public meetings, and occasional reports in the County Courier. Commission members also consult neighboring town plans and occasionally meet with planners from other communities in order to coordinate their planning efforts. These efforts are intended to foster the broadest level of public participation possible, and to utilize the planning process as a vehicle for exercising an inclusive, community-wide vision for the future of Berkshire.

Photo by Arnold Byam

A SNAPSHOT OF THE COMMUNITY

A) PHYSICAL LOCATION AND BOUNDARIES

The Town is located in the northeast corner of Franklin County, which is in turn situated in northwestern Vermont. Berkshire is bounded by the Province of Quebec to the north, the Town of Franklin to the west, the Town of Richford to the east, and the Town of Enosburgh and the incorporated Village of Enosburg Falls to the south.

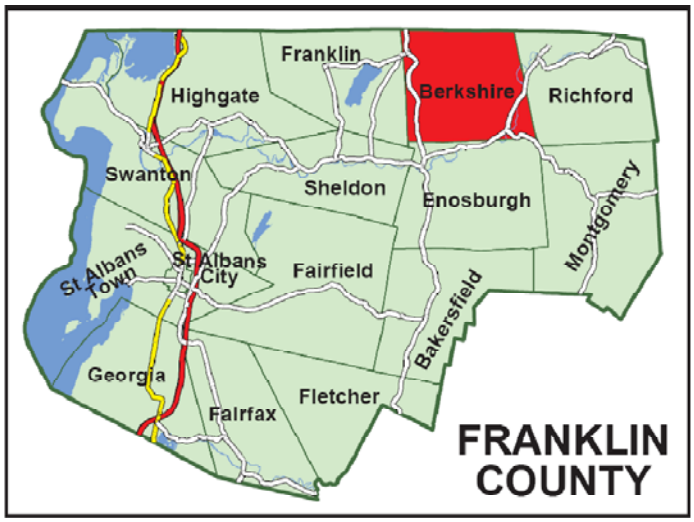
The Town of Berkshire covers more than forty-three square miles of land (27,900 acres), and due to an error in computation, was granted 2,000 acres more than was normally granted to Vermont towns at that time in history. Berkshire is therefore larger, geographically, than most towns in the State.

B) RELATIONSHIP TO THE NORTHWEST REGION

Berkshire is predominantly a rural town lying within the eastern sub-region of the Northwest Region. It is recognized within the Regional Plan as one of the most important agricultural towns in Franklin County. Under the Regional Plan, most of the Town lies within designated "agricultural lands" and the remaining land, considered unsuitable for farming, is included in a "conservation/forest resource" category. The three hamlets of the community, West Berkshire, Berkshire Center, and East Berkshire, are expected to remain the principal areas of population within the Town.

The Town of Berkshire is located between two urban service areas, Richford Village and Enosburg Falls. It is anticipated that the residents of Berkshire will continue to rely upon these areas for services such as fire and police protection, medical and educational facilities, and retail services. While, Berkshire is experiencing the effects of the expansion of employment opportunities of Burlington and St. Albans, northern Franklin County is not experiencing as much growth as southern Franklin County. The neighboring municipalities of Enosburg Falls and Richford provide expanded market opportunities for Berkshire.

The Missisquoi River furnishes the Town and the Region with an important natural asset. The Regional Plan calls for protection of the river and adjacent lands to protect water quality and to preserve its scenic character. The Northern Forest Canoe Trail has been established in Berkshire along the Missisquoi River.



Within the Regional Plan, it is expected that Berkshire will retain its rural, agrarian character. Continued economic health for the Town lies in the protection of its agricultural resource base and maintaining a viable agricultural industry, principally dairy, supplemented by tourism and other related land uses. It is also anticipated that the Town will not be the site of significant urban-type development over the life of the Regional Plan. Growth in the adjacent urban service areas; however, is expected to increase the pressure for residential development on roads leading into Berkshire from these centers. It is recommended within the Regional Plan that most new residential growth occur in and between the communities of West Berkshire and Berkshire Center, on soils suitable for on-site systems.

C) NOTABLE MOMENTS IN BERKSHIRE'S HISTORY

First Settlement

The first "European" settlers arrived in Berkshire in 1791 and established farms in the following years. Job L. Barber and Daniel Adams were the first individuals to settle in Berkshire. However, possibly the most influential early settlers of Berkshire were Stephen Royce, Sr. and his son. Stephen Royce, Sr. moved from Franklin, Vermont to Berkshire and established a farm in 1792. Mr. Royce erected the first frame house in Berkshire in 1799, which still stands today in East Berkshire. His son, Stephen Royce, Jr., resided in this same house until his death in 1868. Stephen Royce, Sr. was very active in promoting the organization of the Town of Berkshire in 1794. He was the first representative to the State Assembly from Berkshire in 1796. His son Stephen Royce, Jr. served in the Vermont Supreme Court, the United States circuit and district courts, and he was elected Governor of Vermont in 1854. Following the arrival of these first settlers in 1792, additional settlers moved to Berkshire for the opportunity to establish farms in an area where the soil produced plentiful harvests.

Table 2.1 Notable Moments in Berkshire's History	
1791	First European settlers arrived
1794	Organization of the Town of Berkshire
1864	Henry I. Stanley built a cheese factory in East Berkshire
1868 (April 29)	East Berkshire fire
1872	Railroad between Richford and St. Albans was built
1942	Berkshire Fire Department Established
1969	New Berkshire Elementary School opens, last three remaining school houses close.
2007	Town Hall renovations completed and historic building reopens as municipal offices.

Berkshire in the 1800s was principally a farming community. By the mid-1800s, most of the forests had been cleared away, and the Town had well over 150 dairy farms. The average dairy herd numbered between 20 and 30 head of cattle. Many farmers were engaged in other agricultural activities as well, including the making of cider and maple syrup, and cattle breeding. Frederick W. Comings of East Berkshire kept 73 beehives in addition to his dairy. Philo S. Ewins, a dairy farmer in West Berkshire, invented the Ewin's improved sap evaporator, and held an 1882 patent on his invention (he also patented a car heater in 1882).

Berkshire also developed centers of commercial activity in the 1800s. East Berkshire contained one hotel, three stores, two millinery shops, a horse-powered churn factory, a carriage shop, two blacksmith's shops, an undertaker, and, by the mid-1850's about 150 inhabitants. The business district had to be rebuilt after a destructive fire destroyed much of it on the evening of April 29, 1868. The fire, which started in the attic of the hotel known as the "Brick House", broke out at about 5:00 p.m. Gale force wind spread the fire through wood structures on both sides of the street, and before midnight, 36 buildings, including the Calvary Episcopal Church, were reduced to ashes. Fire fighting was hampered by a scarce water supply due to a previous period of prolonged drought.

Henry I. Stanley's cheese factory in East Berkshire, built in 1864, produced about 80,000 pounds of cheese per year. William Sampson and Company's horse-power and pump manufactory was established in East Berkshire 1873. The firm produced about 15 horsepower and 350 churns per year, in addition to doing a general repair business. W. H. H. Fenniman's carriage shop, established in 1878, employed four men and turned out about forty carriages and sleighs per year, and also had a general repair business.

The Village of West Berkshire in the mid-1800s contained one hotel, two stores, a tannery, a sash, and blind manufactory, a wheelwright and blacksmith shop, an undertaking and cabinet shop, and about one hundred inhabitants. The West Berkshire flouring mill, owned by George A Jones, was equipped with three "runs" of stones, and did custom work. Collin Goddard's tannery in West Berkshire produced over one thousand hides per year. A. L. Goddard's tannery, also located in West Berkshire, employed three men. L. A. Weld's sawmill in West Berkshire was built in 1865. Approximately 25,000 feet of lumber were cut in the mill each year. A cider mill was connected to the sawmill, where 240 barrels of cider were produced annually.

1871 DeBeers Atlas Maps of East Berkshire and West Berkshire

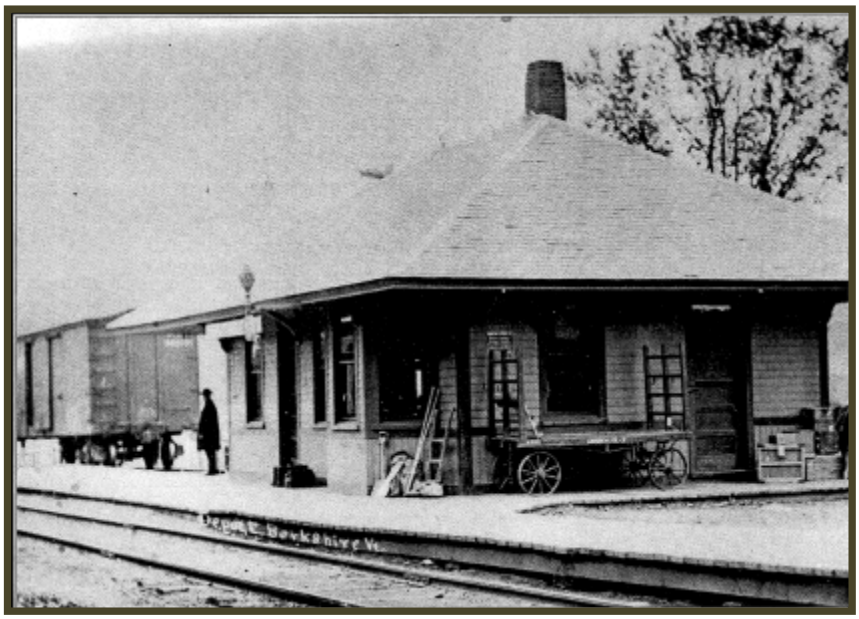
In the mid-1800's, two stores, and a blacksmith shop were located in the small hamlet of Berkshire Center, which had a population of about fifty people. Farmers in Berkshire were able to market their milk locally at the cheese plant in East Berkshire owned by Henry Stanley. The plant was purchased by Guy Marcy in 1900, and was operated as a creamery.

Introduction of Rail Service

Rail service in Berkshire dates back to the 1870s when an intersecting railroad between St. Albans and Richford was built. The construction of this line was started around 1872.

The completion of the rail link in the late 1870's between St. Albans and Richford was an extremely important development for people living in Berkshire. They were then able to easily transport merchandise to markets south and west through the rail center in St. Albans, and to points east and north through Richford.

The Central Vermont Railway offered freight and passenger service to the residents of Berkshire in the late 1800s, and these services continued through the First World War and into the 1920s and 1930s. The Central Vermont schedule in 1919 included two passenger train stops daily in East Berkshire, and one freight stop. Local merchants shipped butter on Mondays, and cattle on Fridays. They also shipped cream, and received shipments of coal and other commodities by rail. Local students were able to take the train to school in Richford in the morning, and return in the evening. The local train station also offered telegraph services.



Train Depot, East Berkshire
Photo Courtesy of Berkshire Historical Society

The railroad maintained two rail sidings in Berkshire, one in the village of East Berkshire adjacent to the train station, and one west of the village along Route 105. Trains were fired by coal-powered steam engines until the 1950's, when diesel engines began to be used more extensively. The rail line through Berkshire is now rail banked and has been converted to the Missisquoi Valley Rail Trail.

Farming and Manufacturing in the 1900's

Many of the manufacturing concerns that were established in Berkshire in the 1800's continued to prosper through the first half of the 1900s; however, very few new businesses were created and most were closed as the railroad declined. The Samson Power and Thresher Company stayed in business into the 1940s making wagons, tables, cupboards, and various other wood products, including sleds, cow stanchions, wheel barrows, and other farm equipment. Gasoline engines replaced horsepower, which had been manufactured at Sampson Power. The company marketed Majestic Gasoline Engines, a very popular make of gasoline engine, during the 1920s, 1930s, and 1940s.

Berkshire supported two creameries in the 1900's, both located in East Berkshire: The United Farmers Creamery, located on the outskirts of East Berkshire on Route 105 toward Richford, and the Maple bills Creamery, located near the railroad station. In 1915, Guy Marcy combined his operations with B. H. Combs and Sons,

who operated a receiving station and creamery in East Berkshire. He also joined forces with the Rouse family, who operated creameries in Richford and Montgomery. The new company was called Maple Hills Creamery Company, Inc. The company produced sweetened condensed milk during the First World War, sold cream, butter, casein, and later shipped fluid milk to Boston. In 1932, Maple Hills Creamery sold out to Consolidated Dairies, which later became New England Dairies. In the late 1940, New England Dairies was sold to United Farmers, and in the late 1950's the creamery was closed down altogether. With the introduction of bulk tanks, storing and preserving milk was simplified, and large milk tankers were able to carry milk over long distances. Local creameries no longer remained a necessity.

The dairy industry in the 1900s remained an integral part of the Berkshire economy, providing a stable income to large numbers of farmers, and to individuals whom they employed. Many of the smaller farms were incorporated into larger farms, and milk production increased as farming became more mechanized, and as breeding practices improved. As farming evolved in the 1900s, the number of dairy farms in Berkshire decreased, the amount of land in farming remained fairly constant, and total milk production increased dramatically.

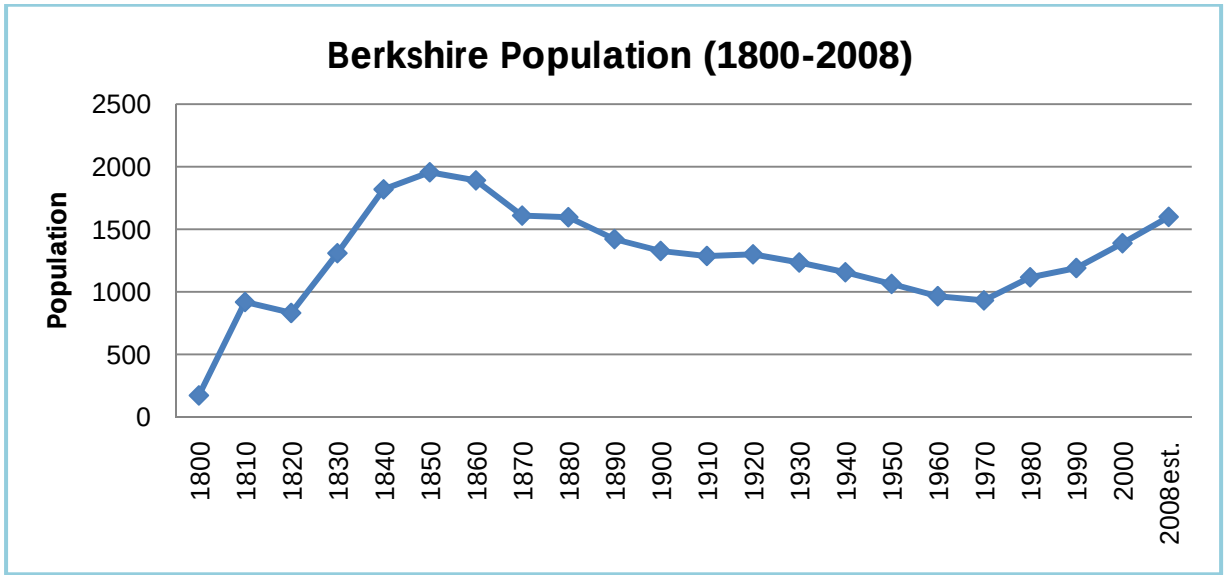
D) COMMUNITY PROFILE

Population: Past Trends and Future Growth

The population of Berkshire reached its peak in 1850 with nearly 2,000 residents. The population decreased for the following 120 years to below 1,000 in 1960 and again in 1970. In 1980; however, Berkshire matched the growth trend ocurring around Franklin County when it registered 1,116 citizens, a 20% increase over the 1970 population. Figure 2.1 shows population trends in Berkshire from 1790 to 2008.

Much of the population increase from 1970 to 1980 (69%) was due to more people moving into the Town than moving out (net migration). The remaining increase was the result of natural increase, where the number of births exceeded the number of deaths. Since natural increase generally stays quite constant over time, population decline over the majority of the 20th century was due to migration out of Berkshire. Figure 2.2 shows natural increase and net migration in Berkshire from 1970 to 2000.

Figure 2.1



The Town's population reached 1,388 in 2000. From 1980 to 1990, Berkshire experienced moderate growth compared to the County and adjacent towns. The following decade, Berkshire's population grew at a greater rate than the County and several adjacent towns at over 16 %. Just under half of the increase was due to in-migration. More recently, population estimates from the 2000 U.S. Census show that Berkshire is among the fastest growing towns in Franklin County, with a 15% increase in population from 2000 to 2008. Table 2.2 and 2.3 below show population and population change from 1980 to 2000 and the estimated 2008 population for Berkshire and surrounding communities.

Figure 2.2

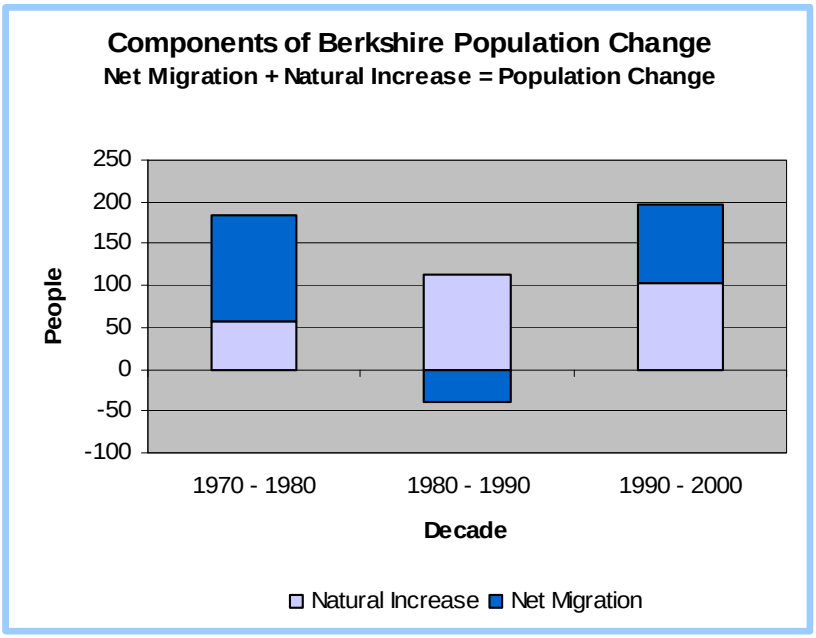
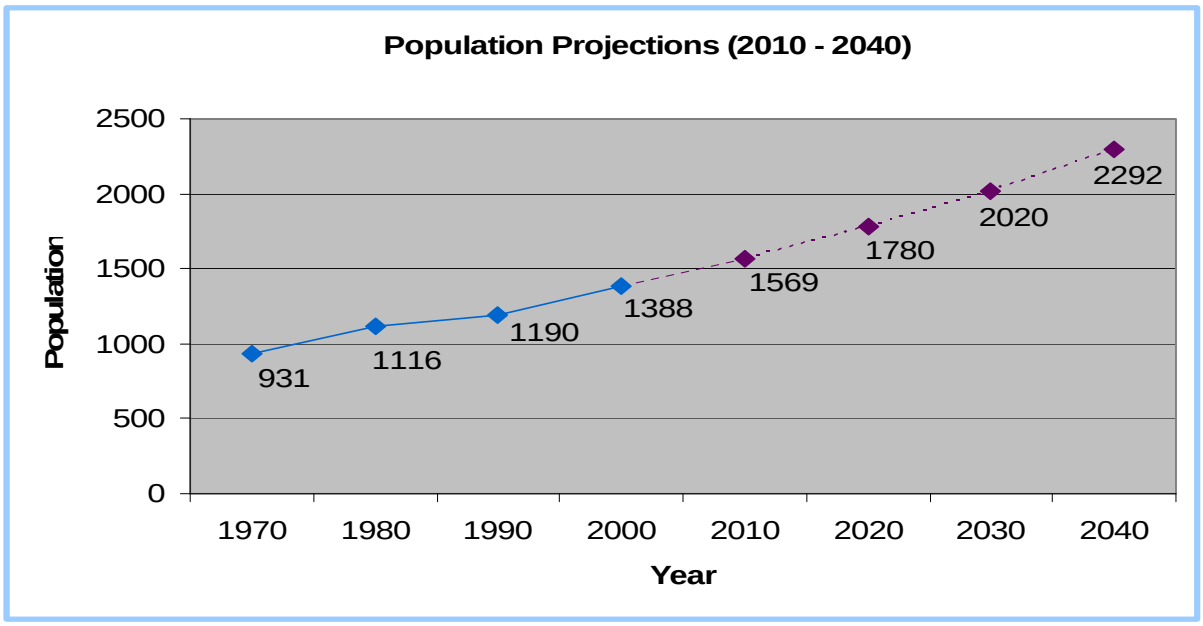


Table 2.2 Actual, Estimated, and Projected Population				
	Actual			Estimated
	1980	1990	2000	2008
Enosburgh Town and Village	2,070	2,535	2,778	2,698
Sheldon	1,618	1,748	1,990	2,303
Richford	2,206	2,178	2,321	2,293
Berkshire	1,116	1,190	1,388	1,598
Franklin	1,006	1,068	1,268	1,300
Montgomery	681	823	992	1,053
Franklin Cnty	34,788	39,980	45,417	47,949
Data Source: U.S. Census				

Table 2.3 Population Change (%)			
	Actual		Estimated
	1980-1990	1990-2000	2000-2008
Sheldon	8.03	13.84	15.73
Berkshire	6.63	16.64	15.13
Montgomery	20.85	20.53	6.15
Franklin	14.92	13.60	5.58
Richford	6.16	18.73	2.52
Enosburgh Town and Village	-1.27	6.57	-1.21
Franklin Cnty	14.92	13.60	5.58
Data Source: U.S. Census			

It is difficult to make accurate population projections for small population bases, but they nonetheless are useful planning tools. The Planning Commission used computer software to generate population projections based on historical population figures since 1970 using several methods. The geometric curve method is shown in Figure 2.3 because it produced a 2010 projection (1,569) that was closest (about 30 people short) to the 2008 estimated population of 1,598. Based on these projections, Berkshire could potentially experience annual population increases of 13%, reaching 2,292 by the year 2040.

Figure 2.3



Source: U.S. Census, Lewis Creek Foundation/ACRPC Buildout Analysis Software

Population Age Groups

Age distribution trends can be useful in predicting future service needs, especially for school capacity and senior services. The 2000 Census reports that the median age in Berkshire is 36.1 years old, which is about the same as the median for Franklin County and 1.6 year younger than the state of Vermont. Berkshire age breakdown is very similar to the Franklin County, with the largest age groups being from 35 to 44 and 45 to 54 years old. Since this data is almost 10 years old now, the group of 35 to 54 year olds are now 45 to 64 years old. As the middle-aged population approaches retirement age, demand for senior services such as housing options and rural transit will likely increase. The 18 to 34 year old population (now almost 28 to 44) is smaller in proportion. In combination with the trend of decreasing family size, this is resulting in static school enrollment (see Section VI). A breakdown by age category in Berkshire is shown in Figure 2.4.

Figure 2.4

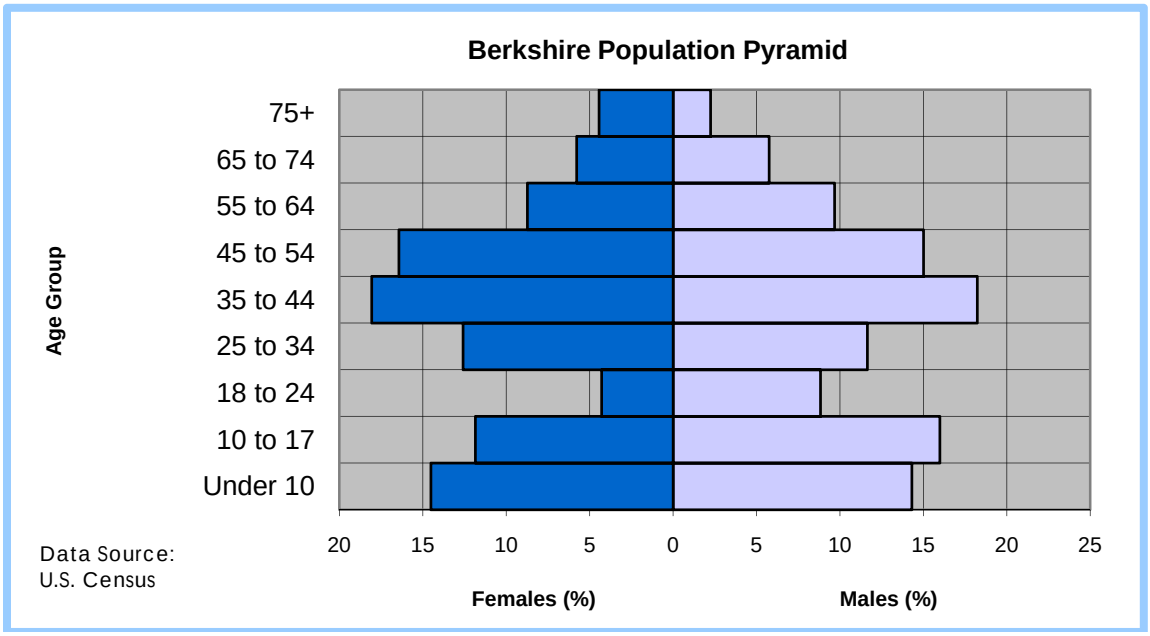

Berkshire Population Pyramid
Age Group
75+
65 to 74
55 to 64
45 to 54
35 to 44
25 to 34
18 to 24
10 to 17
Under 10
20
15
10
5
0
5
10
15
20
25
Females (%)
Males (%)
Data Source:
U.S. Census

Photo by NRPC

THE SENSE OF PLACE

A) NATURAL RESOURCES AND ENVIRONMENT

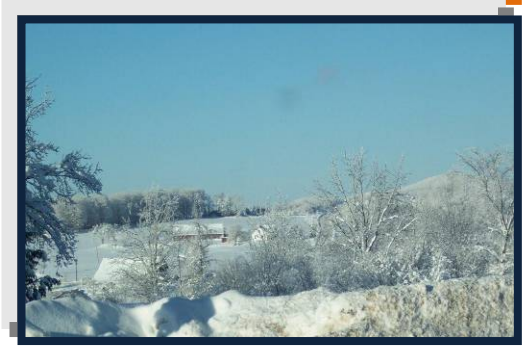
Climate

Climatic Conditions

Climate represents the normal or average type of weather conditions that are characteristic of an area over a long period of time. Climatic conditions depend upon a number of locational factors, such as latitude, elevation, and topography, which affect atmospheric conditions, including temperature and precipitation patterns, prevailing winds, humidity, and cloudiness. Climate is an important consideration in the planning process because it affects such things as bedrock weathering, soil development and erosion, plant growth, air quality, road maintenance, and winter heating bills.

The entire State of Vermont lies within the "prevailing westerlies", a belt of air moving eastward that encircles the globe in the mid-latitudes. Our climate in Vermont is dominated by cold dry air from sub-arctic Canada, particularly in the winter months, and warm, moist air, which moves northward from the Gulf of Mexico, mainly during the summer. Occasionally, we also feel the effects of cool, damp air moving inland from the North Atlantic. At times, Vermont experiences violent thunder and windstorms as weather patterns shift, but tornadoes and hurricanes are rare.

Berkshire, located between the Champlain Lowlands and the Green Mountains proper, does not experience the moderating effects of Lake Champlain nor the cooling effects of neighboring higher elevations. January temperatures average between 16 F and 18 F; the mean temperature in July is around 70 F. Since Berkshire is located on the western side of the Green Mountains, it does receive relatively more precipitation in the form of rain



Seasons of Berkshire
Photo Credits: Jere Levin and Arnold Byam

and snow, than areas in the islands and on the lake plain. Annual average precipitation is approximately 43 inches (Vermont State Climate Office, 2002). Snowfall averages about 95 inches per year.

Due to its latitude and location in the foothills of the Green Mountains, Berkshire has a relatively short growing season, averaging less than 120 days between the killing frosts of spring and autumn. This limits the types of crops that can be produced. Cool weather crops, such as hay, wheat, rye, oats, and some root crops, are particularly well suited to these growing conditions. Hybrids of warm-weather crops such as corn have also been developed for this climate, but generally do better elsewhere. Rainfall is adequate for most type crops, though some irrigation is used on very droughty soils.

The climate of Berkshire is pleasant, particularly in the summer months. Buildings, however, must be built with sufficient insulation, and efficient heating systems to stave off the cold of winter. The freeze and thaw cycle that makes the maple sap run also buckles poorly drained pavement and roads. Spring thaws and rains bring flooding and the muck of "mud season" that makes many dirt roads and driveways impassable. The adversities associated with living in a northern Vermont climate can be lessened by the proper planning, siting, and construction of new development; and the benefits are many, clean air, warm summers, white winters, and year-round outdoor recreational opportunities.

A Changing Climate

Over the past decade, international scientific consensus has acknowledged that the climate is changing. The effects of climate will be felt internationally and in a number of ways. It is unclear if the climate will be warmer or colder; if precipitation will increase or decrease from year to year in specific regions. It can be anticipated however that Berkshire and Vermont in general will see different weather patterns than what has been historically experienced. This can have an effect on several industries such as tourism, especially for skiing and agriculture, particularly sugaring. In addition, important natural resources may be affected by changes in the climate.

Air Quality

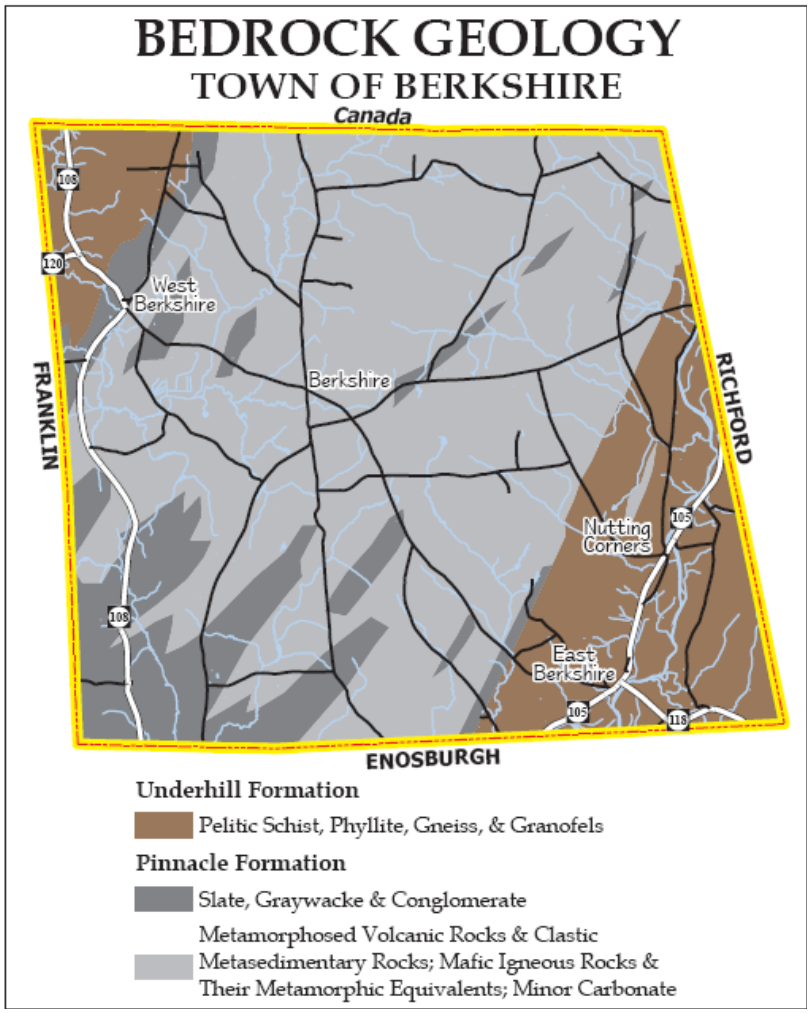
Weather patterns, and wind direction in particular, are important in the discussion of air quality. Prevailing winds are generally from the west, but may vary in direction and intensity at a particular site from season to season, day to day, and hour to hour. Wind, along with other atmospheric conditions, should be considered in siting any industry that produces airborne emissions. Such emissions, including pollutants, smoke, and noxious odors, may be harmful to human health and the environment in high enough concentrations. It is therefore important for local officials to consider the requirements of maintaining clean air in conjunction with the need for economic development.

Presently no potentially air-polluting industries are located in Berkshire. The cumulative impact of minor sources-- including automobile emissions and some agricultural practices-- may have a greater impact on local air quality in the future.

Geology

Bedrock Geology

Geologic events have directly affected Berkshire's topography, soils, and drainage patterns, which in turn have influenced the patterns of local community and economic development. Berkshire lies amid the western foothills of the Green Mountains, between the Champlain Lowlands (lake plain and islands) to the west and the Green Mountain anticlinorium (Green Mountains proper) to the east. This area is underlain by rocks formed from sediments and volcanic material deposited some 600 million years ago (Cambrian period), which were then changed and hardened (metamorphosed) by the heat and pressure of mountain building. Two bedrock formations predominate: the older Pinnacle Formation, underlying most of Berkshire, and the younger Underhill formation, found in northwest and southeast corners of Town. A small area where the Missisquoi River crosses the border into Richford is underlain by the Sweetsburg Formation, a layer of black slate with thin, whitish banding.



Map 3.1

The Pinnacle Formation includes two bedrock members. One was formed from water deposited sands that were changed into a coarse sandstone interbedded with metamorphosed clay sediments, and includes such minerals as quartz, sericite,

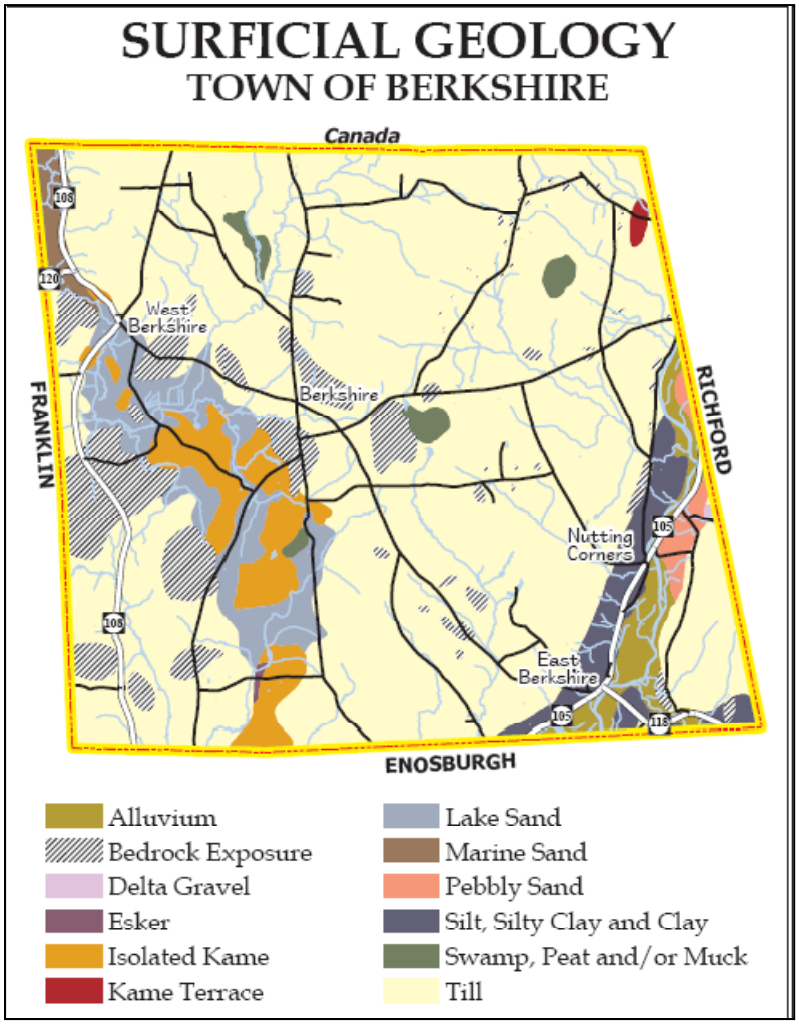
and chlorite (shown as slate, graywacke, and conglomerate in dark grey on Map 3.1). The other, known as Tibbit Hill volcanics, underlies most of Berkshire, and consists of metamorphosed volcanic rock interbedded with the greywacke (shown as metasedimentary rocks; mafic igneous rocks, and their metamorphic equivalents; minor carbonate in light grey on Map 3.1). Minerals associated with the volcanics include albite, epidote, and chlorite. Copper, once mined in Berkshire, is also found with the volcanics. Lava flows and structures associated with this member are visible in outcrops near Ayers Hill.

The Underhill Formation, marked from the Pinnacle Formation beneath it by a layer of dolomite and slate, consists mainly of interbedded phyllites and schists. Interbeds of slate and greenstone are found in the southeast and small beds of dolomite and marble outcrop in the northwest. The Pinnacle Formation is shown as politic schist, phyllite, gneiss, and granofels in brown on Map 3.1.

Surficial Geology

Materials deposited during and after glaciation, including glacial tills, outwash sands and gravels, and Lake Bottom sediments, cover much of the Town's surface. These are the parent materials from which most soils in Berkshire have developed over the last 10,000 years, since the glacier's last retreat. Also found on the surface are organic peats and mucks that have accumulated in low-lying areas and more recent flood deposits adjacent to rivers and streams.

Tills, consisting of unsorted, poorly drained materials, cover most of Berkshire in a thin layer. Exposed bedrock, bouldery surfaces, and shallow soils are common in till areas. Level terraces of well-



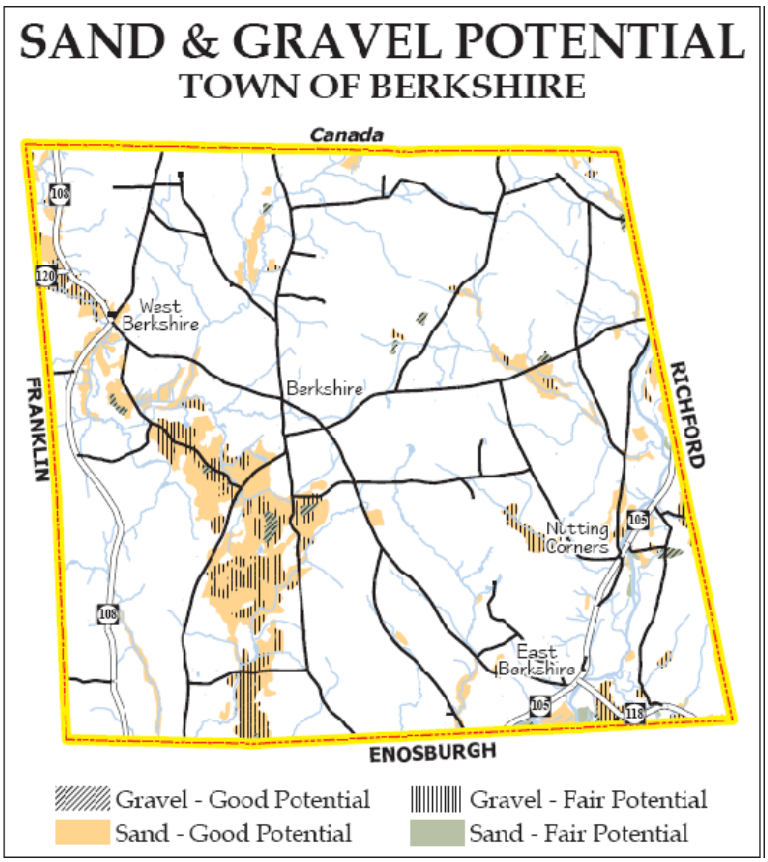
Map 3.2

sorted sands and gravels, deposited during glacial melt, are located along the Missisquoi River and other stream valleys in Town. Of particular note is isolated kame, formed along the side of an ice sheet that once existed in the valley now occupied by Trout Brook and Mineral Brook. These kame deposits are often good sources of sand, gravel, and ground water and provide a well-drained, level surface on which to build. As such, they represent an important resource to the Town that may be subject to competing and not always compatible uses. Lake bottom silts and clays, deposited in the valley occupied by the Missisquoi River, are poorly drained and unsuited for most types of development, as are most flood and organic deposits. Map 3.2 shows surficial geology materials in Berkshire.

Earth Resources

A number of minerals and metals are associated with the metamorphosed volcanic bedrock that underlies much of Berkshire. Copper was once mined in Town, but the operation proved to be uneconomical. Mineral collection areas exist at outcrops, but minerals are not likely to be present in commercial quantities.

Sand and gravel deposits, however, are present in economically viable amounts, and extraction operations have been on-going (Map 3.3). The Town currently owns and operatates its own gravel pit on Mineral Brook Road. There is increasing demand for sand and gravel for use in construction and road maintenance, and deposits are in limited supply. These deposits are a valuable resource for the community that should be protected until needed and developed for the benefit of local residents. An inventory of commercially viable deposits should be undertaken in the future in order to determine their quality and extent.

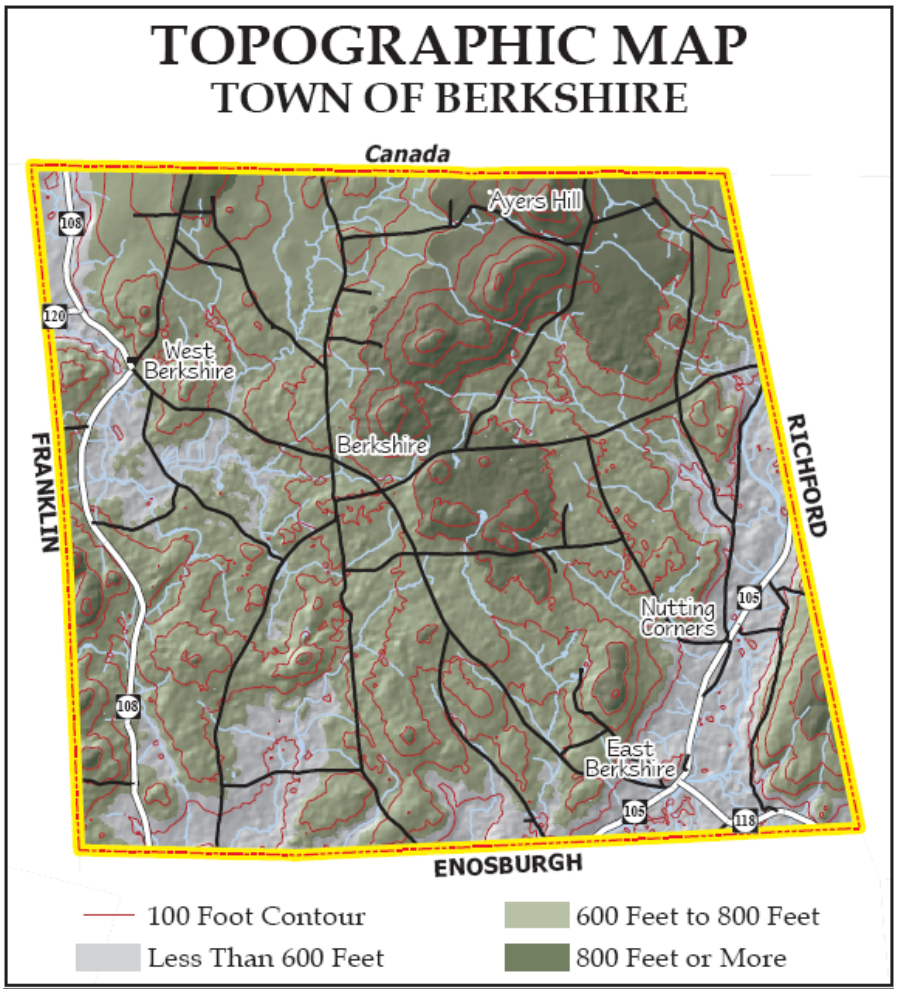


Map 3.3

The environmental and social impacts of extraction operations also need to be considered in their development. These include the elimination of ground water recharge areas and ground water contamination; the alteration of surface drainage patterns, soil erosion, and stream sedimentation; the possible destruction of environmentally and archaeologically sensitive areas; noise, dust, and increased amounts of heavy traffic; the diminished scenic quality of the landscape, and limited utility for subsequent uses of a site; and reduced property values. Many of these adverse impacts can be minimized through appropriate site planning and development, erosion control, the phasing of operations, and proper site reclamation.

Significant Geologic Sites

Three areas of particular geologic significance for their educational and scientific value have been identified in Berkshire and are included in the Vermont Natural Areas Inventory completed in the 1970s: Ayers Hill, the Berkshire Kettle Hole, and the Berkshire Copper Mine. These are discussed in more detail in the Critical Areas section.



Map 3.4

Topography

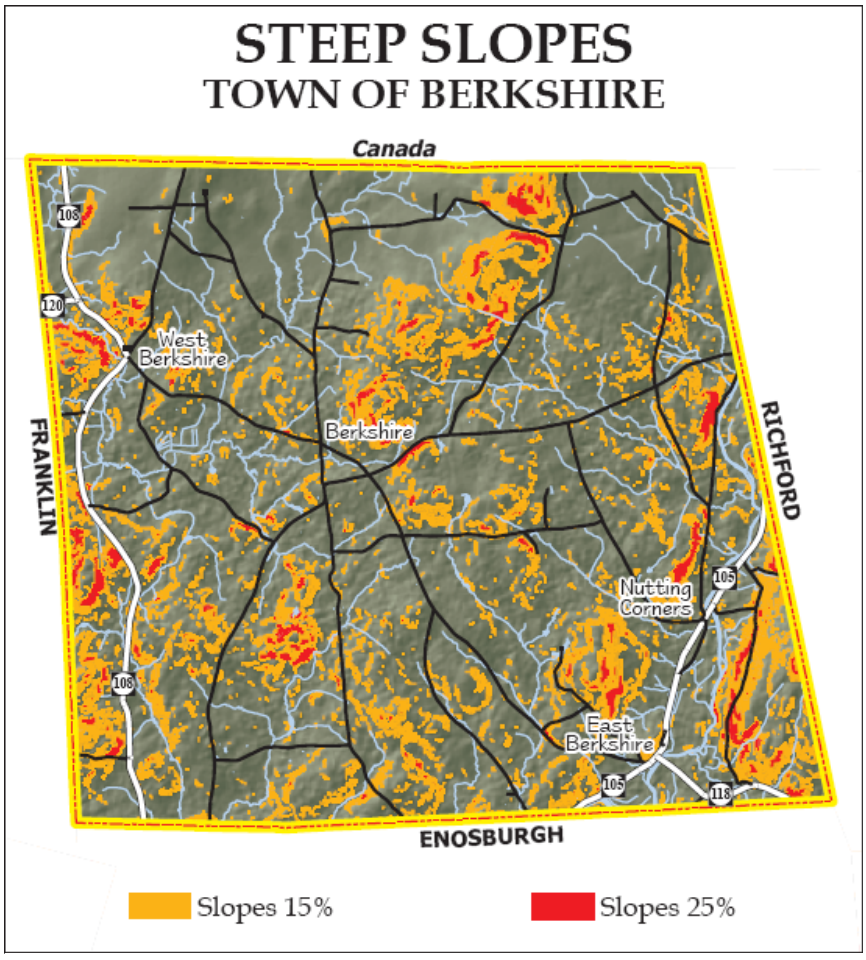
Because topography provides natural barriers to movement and often influences the accessibility and use of land, topographic information is important in planning for land use, transportation routes, and the location of public services and facilities. A general observation regarding past development is that "grade follows grade." In other words, graded land uses such as transportation routes, just as water, follow paths of least resistance. It is no coincidence that roads and railways often follow stream and river valleys.

Elevation

Elevations in Berkshire range from around 415 feet above mean sea level (m.s.l.) along the Missisquoi River southwest of East Berkshire, to 1,326 feet atop Ayers Hill near the northern border (Map 3.4). Most development in the Town is located between 450 feet and 750 feet. Areas of high elevation, including ridge and hill tops, are often visible and contribute much to the scenic beauty of the area. The hills in north central Berkshire, including Ayers Hill, have also been identified as probable bedrock aquifer recharge areas. Consequently, ridge and hill tops, and areas over 800 feet in elevation, should be protected from unsightly and potentially harmful development.

Slope

One of the most important factors controlling the potential use of a given parcel of land is slope. Slope is the inclination, or change in elevation, of land over a horizontal distance, and is often expressed as a percentage (number of feet of vertical rise over 100 feet of horizontal distance).



Map 3.5

Slopes are an important consideration not only because of the environmental constraints that they impose with regard to drainage and bearing capacity, but also because of the environmental damage that may result from their alteration. Major causes of slope destabilization include vegetation removal and undercutting slope banks. Slope destabilization can result in accelerated runoff and soil loss, septic system failure, and in the extreme, land slides and building collapse.

Land that is nearly level is generally more productive for farming, and is also more easily and inexpensively developed for industrial, commercial, and large scale residential uses. Steeply sloping land is usually best used for timber production, which minimizes the potential for erosion and provides wildlife habitat, recreation, and open space. These types of uses are not incompatible, but steep terrain with multiple uses requires careful land management and appropriate land use controls. Steep slopes over 15% and 25% are shown in Map 3.5, while general recommendations for the appropriate use of land with regard to slope are given in Table 3.1.

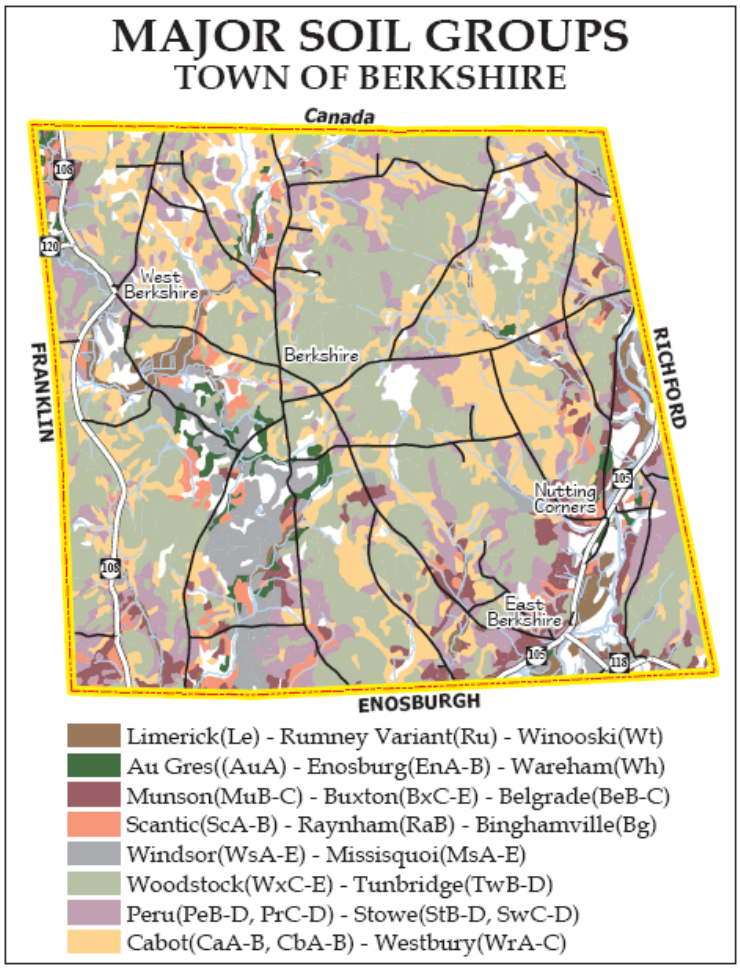
Table 3.1: Slope Categories

Average Slope	Uses/Restrictions
0 – 3% (SCS: "A")	Suitable for most types of agriculture and constructions, including higher density residential, commercial, and industrial development. Since land is nearly level, drainage may be a problem.
3 – 8% (SCS: "B")	Suitable for many types of agriculture, single-family homes on larger lots, as well as low-density multi-family housing, minor roads, and smaller commercial and industrial buildings. These slopes have a minimum of restrictions.
8 – 15% (SCS: "C")	Suitable for limited types of agriculture, single family homes on large lots, as well as low density multi-family housing, timber production, and recreational/open space uses. Where necessary, terracing, retention ponds, retaining walls, and other engineering techniques may be needed to prevent runoff and erosion.
15 – 25% (SCS: "D")	Suitable for timber production, limited residential, recreational, and open space uses. Construction becomes very costly on these slopes, rapid runoff and erosion problems are likely. These slopes are unsuitable for most types of on-site septic systems.
Over 25% (SCS: "E")	All construction should be avoided on these slopes because of high costs and the likelihood of damage to the environment. Vegetation removal and construction could lead to widespread slope failure.

Soils

Soil is perhaps the most important physical factor governing the use of the land. Most soils in Berkshire, having developed from materials deposited during glaciation, represent a 10,000 year investment that has resulted in a very valuable and limited resource.

In the context of land use planning, four soil characteristics are of particular concern: bearing capacity, erodability and stability, drainage, and resource value (for agriculture, forestry, building material, etc.). These characteristics are generally dependent on particle size (sand, silt, and clay) and water content. Poorly drained, fine-grained (clay) soils have the greatest limitations for most types of land use, in particular, anything requiring the installation of an on-site septic system. In contrast, coarse-grained, well-drained sandy soils, though often unattractive for agriculture, are generally suited for residential, commercial, industrial, and related uses.



Map 3.6

Soils are classified on the basis of their structure, form, composition, and suitability for various types of development. The latest soil survey in Franklin County was completed by the Natural Resource Conservation Service in 1998. Major soil groups from this survey are shown in Map 3.6 and listed in Figure 3.1. The information in Figure 3.1 is intended for planning purposes only; more detailed information regarding particular soil types is available in the Soil Survey, which should be consulted for specific site analyses.

Figure 3.1
Soil Groups

Limerick (Le)- Rumney Variant (Ru)- Winooski (Wt)
These soils are found along the Missisquoi River and the Trout River in the vicinity of East Berkshire, and along the Pike River south of West Berkshire. They formed recent flood plain deposits, and tend to be moderately well-drained to poorly drained loamy soils.

Limitations are severe for building of any kind on these soils and septic systems, due to seasonal flooding and wetness. The depth to bedrock is generally 5 feet or more, however the depth to the seasonal high water table varies from zero to 3 feet. Winooski soils are considered prime agricultural soils; Limerick and Rumney soils are also primary agricultural soils of statewide importance. None of these soils are considered a good source of roadfill, sand, gravel, or topsoil.

Au Gres (AuA)- Enosburg (EnA-B)- Wareham (Wh)
These soils are found in only one location in Berkshire, along the west side of the Missisquoi River where it intersects with Route 105 north of East Berkshire. The soils of this group formed on terraces and old lake plains from materials deposited by glacial melt water, and are generally somewhat poorly drained to poorly drained, level or gently sloping, fine sandy loams.

Limitations are severe for septic systems and building of any kind, again due to wetness. Flooding does not occur; however, the depth to the seasonal high water table is only 0 to 1.5 feet. Depth to bedrock is generally 5 feet or more. Enosburg soils are considered prime agricultural soils; Au Gres soils are also primary agricultural soils of importance to the state. Au Ores soils are a good source of sand, and Wareham soils are a fair source. None of these soils provide a source of roadfill, gravel, or topsoil.

Munson (MuB-C)- Buxton (BxC-E)- Belgrade (BeB-C)
These soils are found in several locations: between Route 108 and Trout Brook north of Enosburg Falls, north of the Missisquoi River in the vicinity of East Berkshire and Samsonville, west of Route 108 near the Canadian border, and

1

west of Route-105 where it enters the Town of Richford. These soils also formed from Mater-deposited materials on old terraces and lake plains. They are gently sloping to steep, somewhat poorly drained to moderately well-drained, silty and clayey soils.

Limitations for building are severe due to seasonal wetness, frost action, slope, and low bearing capacity. Depth to bedrock is 5 feet or more; depth to the seasonal high water table averages between 0.5 and 3.5 feet. BeB is considered a prime agricultural soil, and BeC, BxC, MuB, and MuC are considered primary soils of statewide importance. BeB is also considered a good source for topsoil, while BeC, BxC, and MuC are fair sources of topsoil, otherwise, these soils are not suited for topsoil, roadfill, sand, or gravel.

Scantic (ScA-B}- Raynham (RaB)- Binghamville (Bg)

The soils of this group are found in two small areas in Berkshire: near the northwest corner of the Town, and at the southern boundary near North Enosburg. These soils also formed from water deposited material in depressions or on old lake plains. They are level to gently sloping, poorly drained silt and clay soils.

Limitations are severe for building and on-site sewage disposal due to wetness, frost action, and low strength. Depth to bedrock is generally 5 feet or more and depth to the seasonal high water table varies from 0 to 2 feet. RaB and Bg are considered prime agricultural soils, and ScA and ScB are considered primary agricultural soils of statewide importance. None of these soils are suitable for roadfill, topsoil, sand, or gravel.

Windsor (WsA-E)- Missisqoui (MsA-E)

Windsor and Missisquoi soils are found in a swath of land extending from the Berkshire-Franklin boundary near West Berkshire to the Enosburg line south of the Enosburg Town Forest. They are also found in an area northeast of the Missisquoi River where it crosses Route 105, in a small area northwest of this, and south of Route 118 in East Berkshire. These are nearly level to very steep, excessively drained sandy soils that also formed from water deposited material on old glacial terraces and lake plains.

These soils are particularly suited for development, limitations are slight for building and septic tank absorption fields in areas having slopes of 0 to 8 % (slope categories A and B) and moderate in areas of 8 to 15 % slope

1

(category C). Development limitations increase as slope increases due to ground water seepage and greater slope instability. Depth to bedrock is 5 feet or more, and depth to the seasonal high water table is 6 feet or more. Windsor and Missisquoi soils (A and B) tend to be droughty, but are considered primary agricultural soils of statewide importance. Windsor soils, where slope permits, are good sources of roadfill and sand, but are unsuitable for gravel and topsoil. Missisquoi soils, also depending upon slope, are suitable for roadfill, sand, and gravel, but unsuitable for topsoil. Because water infiltrates easily, Windsor and Missisquoi soils often overlie sand and gravel aquifers.

Woodstock (WxC-E)- Tunbridge (TwB-D)- Rock Outcrop (RoE)

These soils are found in two areas: the north central section of Berkshire, and in the southeast corner of Town. The soils in this group formed from till deposits on hills and bedrock ridges and consist of shallow, excessively or well drained, loamy soils interspersed among rock outcrop. Slope conditions vary greatly.

Limitations for building and sewage disposal are generally severe due to slope conditions and shallow soil depth, however only moderate limitations exist on Tunbridge soils (B and C) for dwellings and small buildings without basements, and road construction. Depth to bedrock averages 10 to 40 inches; depth to the seasonal high water table is 6 feet or more. These are not considered primary agricultural soils, though Tunbridge soils are considered a good to fair source of topsoil, depending upon slope. These soils are unsuitable for roadfill,

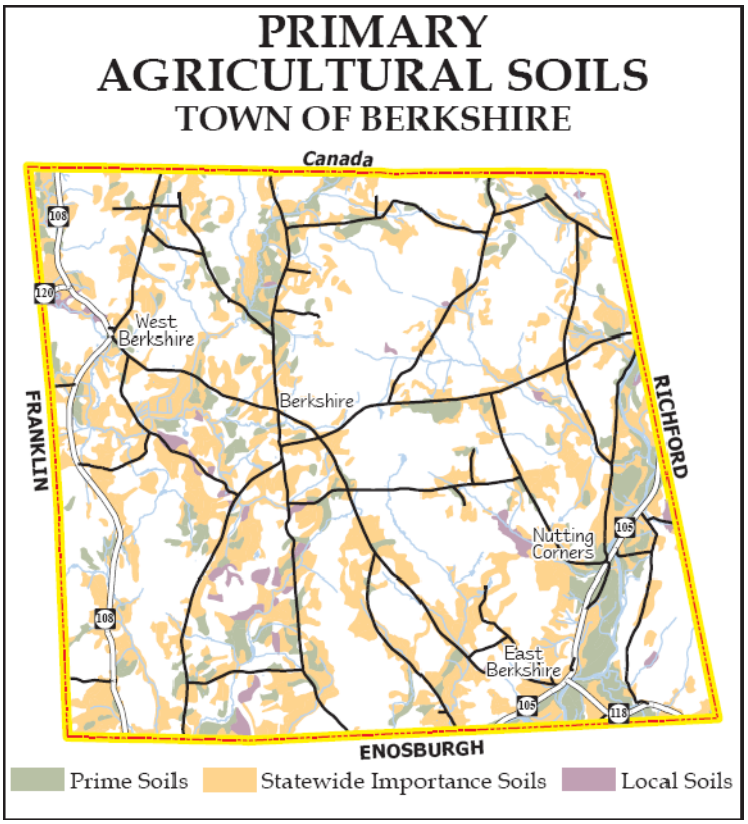
Primary Agricultural Soils

Primary agricultural soils, as defined by Vermont's Land Use and Development Law (Act 250), include soils which, based upon their chemical and physical properties, are considered especially suited for agricultural use. These are subdivided into "prime" soils having a very high potential and few limitations for producing food, feed, forage or fiber crops; and "good" soils of statewide importance that have good potential, but one or more limitations that may restrict the choice of crops and require more careful management. The Vermont Agency of Agriculture also recognized "local" soils with agricultural potential, but which are not regulated under Act 250. Prime, statewide, and local agricultural soils are shown in Map 3.7.

In the rolling hills and mountains of northwestern Vermont, primary agricultural soils, and "prime" soils in particular, are a very limited and valuable resource. Agriculture depends upon the availability of high quality land, in large enough acreages (a "critical land mass"), to make crop production economical. However, many of the best agricultural soils, because of their physical properties, are also attractive for more urban-type development, such as the subdivision of land for the construction of roads, houses, businesses, and industry.

Berkshire is no exception.

This conversion of primary farmland into built-up development is the cause for much concern statewide. Building on farmland effectively takes it out of production and reduces an already limited resource base. In Berkshire, much of the best farmland, located along roads winding through the Town, is still in agricultural production. In the past, more acres have been lost to shrub and forest cover with the abandonment of hill farms, than to development; but because of the importance of agriculture to the community, farmland conversion and fragmentation are prominent local concerns.

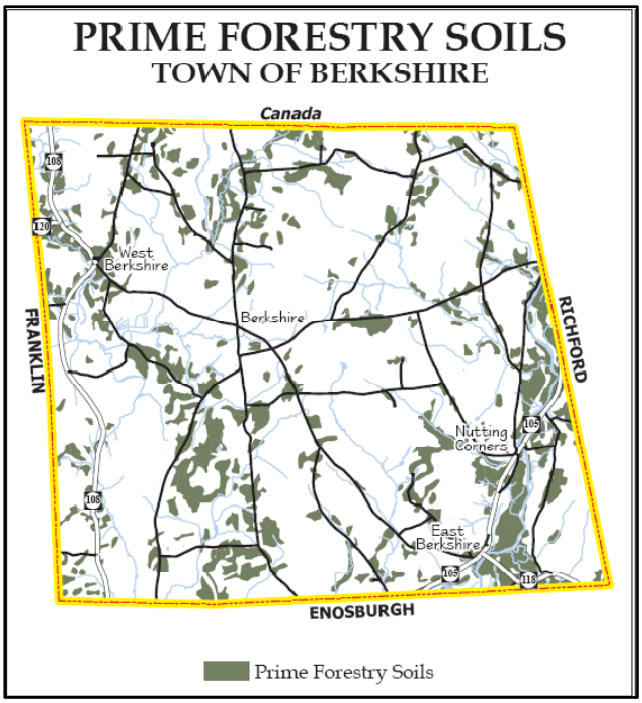


Map 3.7

Retaining large enough acreages of the best soils for agricultural use is necessary for the continued existence of farming in Berkshire. It is important; however, to also consider social and economic factors when determining what land should be reserved for agriculture in the future.

<u>Primary Forestry Soils</u>

Primary forestry soils have also been identified by the State according to their productivity for commercial forestry. These soils are included within "Site I" and "Site II" productivity classes based upon their chemical and physical make-up and are shown in Map 3.8.



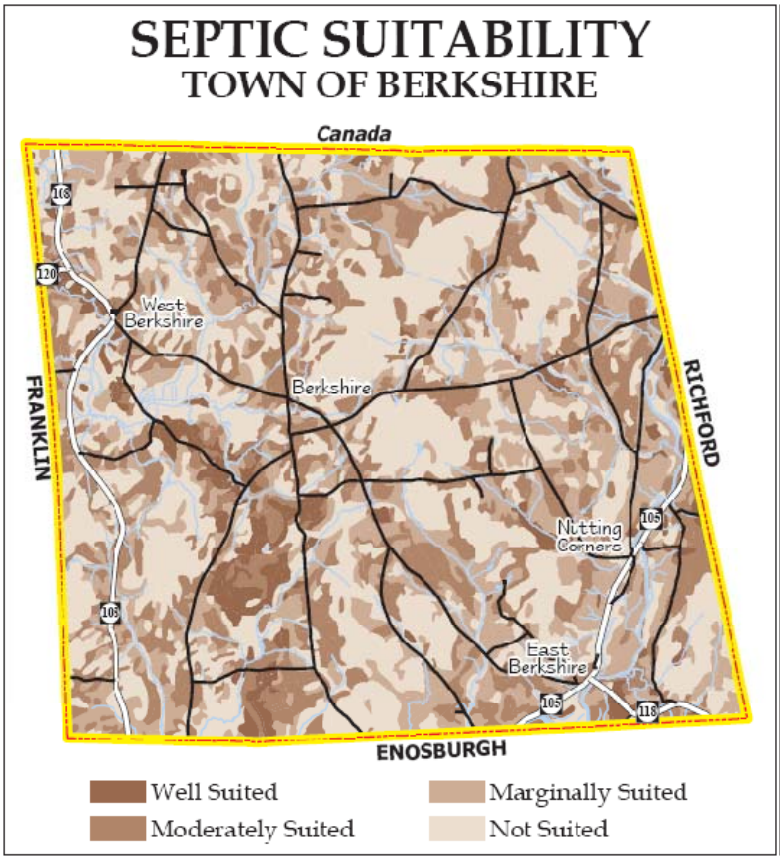
Map 3.8

Similar concerns exist regarding the

development and fragmentation of commercial forestry soils as for agricultural soils. They are more widespread in Berkshire than primary agricultural soils and although there is some overlap with these soils, most primary forestry soils remain undeveloped. Primary forestry soils include many soils, which because of slope or drainage, are not suitable for intensive development. This may reduce certain development pressures, but even low intensity development such as seasonal home construction may result in fragmentation and limit access to good forestland. Again, socio-economic factors, as well as the soil resource, should be considered in determining which tracts of potential forestry land should be reserved for that use.

Development Soils

As noted in Figure 3.1, there are very few soils in Berkshire that are suitable for high density development, especially given the lack of a centralized sewage system. Most prime development soils are located along the sandy isolated kame soils in the area between the Boston Post Road and Water Tower Road, and extending northward along both sides of Mineral Brook Road to West Berkshire (see Map 3.9). Many of these soils are also considered primary agricultural soils, and are in agricultural production. Many of the Town's sand and gravel deposits are located here as well. Conflicts between differing development interests may occur in this area in the future.

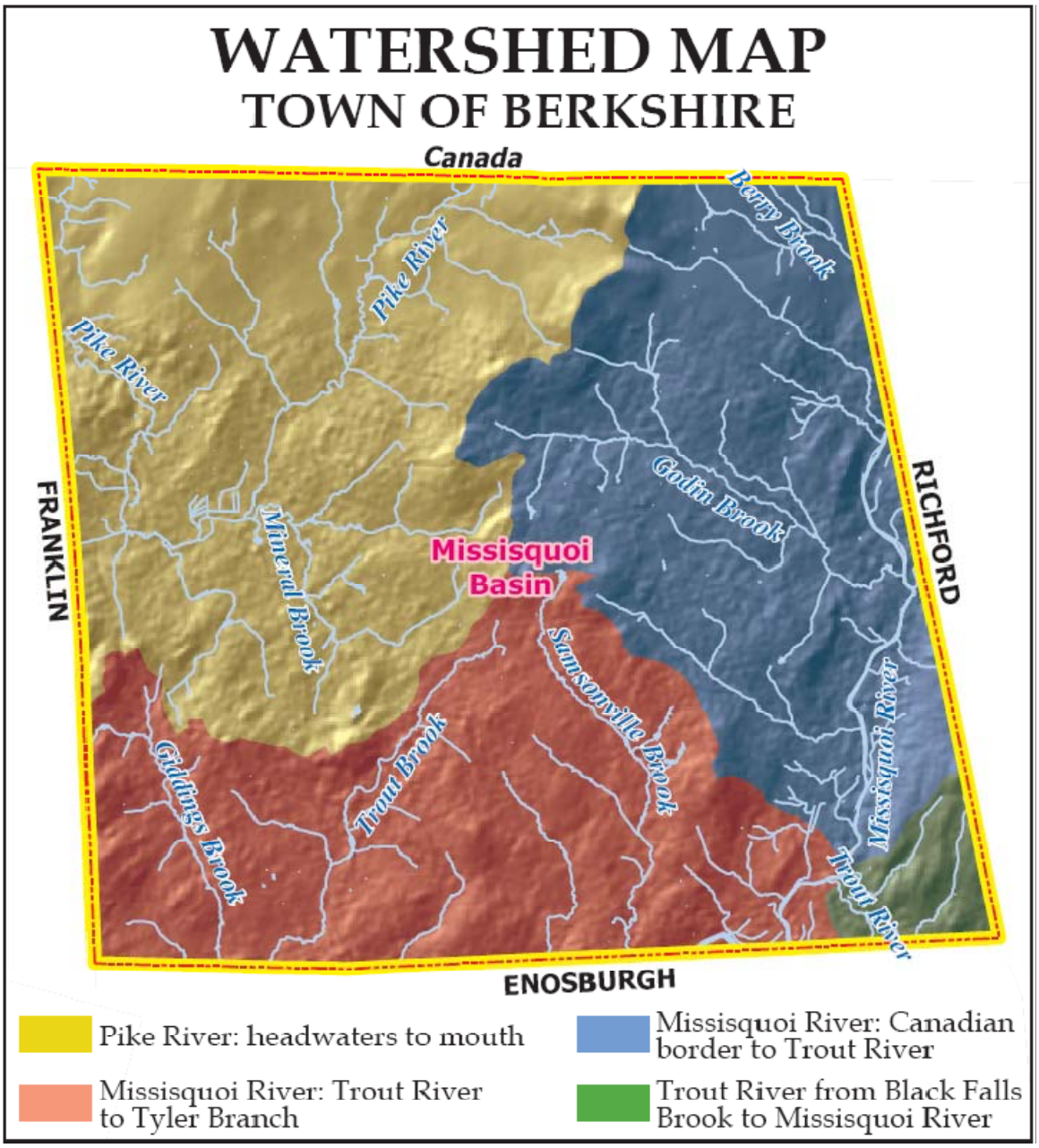


Map 3.9

Water Resources

Water is to the earth as blood is to the human body. Water is essential to the life of the individual and the community, but too often, its continued availability and purity are taken for granted. Consideration of the quantity and quality of water resources, and the fact that water does not recognize political

boundaries in its movement, are basic to the planning process. This requires some understanding of the way water circulates through the environment (the "hydrologic cycle"), how human actions can modify this cycle, and the possible impact of these modifications on the water supply and the environment.



Map 3.10

Surface Water

Berkshire is located within the Missisquoi Basin (Map 3.10), a network of rivers and streams stretching across northern Vermont and ending in Missisquoi Bay and Lake Champlain. The Missisquoi River and its tributaries drain most of Berkshire.

The Missisquoi crosses the southeast corner of Berkshire and flows in a southwesterly direction through Town. A major tributary, the Trout River, flows into the Missisquoi at East Berkshire. Other tributaries include Trout Brook and Giddings Brook in the southwest corner of Town.

The Pike River and its tributaries drain the northwest part of Town into Missisquoi Bay. This river originates in the north central hills of Berkshire, flows southwest where it joins with Mineral Brook, and then flows northward into Franklin where it receives water from Lake Carmi. It then reenters Berkshire and exits at the Canadian border.

The section of the Missisquoi River from the dam at East Richford to its mouth, including the segment in Berkshire, has been identified as an important recreational river for boating and fishing. The 10.5 mile segment through Berkshire has also been cited as an important fishery for natural populations of smallmouth bass, and natural and stocked populations of brown trout. The Trout River into East Berkshire is also a fishery-- the home of natural populations of brown and rainbow trout (Vermont Rivers Study 1986).

Additionally, the Missisquoi and Trout are currently being studied in consideration for designation as National Wild and Scenic Rivers. This would place these two rivers among the Nation's most valued and beautiful rivers that remain in their natural state. Designation as a Wild and Scenic River will ensure by an act of Congress that about 70 miles of the Missisquoi and Trout Rivers will continue to be protected as natural assets in the area. The three year study will be concluded by the first quarter of 2012. The two rivers are already part of the Northern Forest Canoe Trail, which maps a network of waterways from Canada across Lake Champlain into New York State. The trail is a recreational paddling route that includes lakes, rivers and streams and attracts a variety of visitors.

Water Quality

While water quality is generally good, many rivers and streams in Berkshire have been experiencing water quality issues associated with point and non-point sources of pollution. Historically, "point" sources of pollution, such as the Village of Richford Sewage Treatment Plant, were considered the most significant threats to water quality. However, as state and federal permitting requirements have begun regulating these facilities, the "nonpoint" sources of pollution (i.e., decentralized activities across the landscape that result in pollution, such as farming and development) have come to be recognized as the dominant source of pollution in the watershed. Water quality issues in the rivers and streams in Berkshire are contributing to the water quality issues experienced in Missisquoi Bay and greater Lake Champlain, where they all ultimately flow.

Each year the State of Vermont prepares a list of waterways that are impaired

and are unable to meet water quality standards (the 303d list and the impaired list outside the scope of 303d). They also prepare a list of waterways that may be impaired but are in need of further assessment before being added to the list. The impaired waterways and those in need of further assessment are listed in Table 3.2.

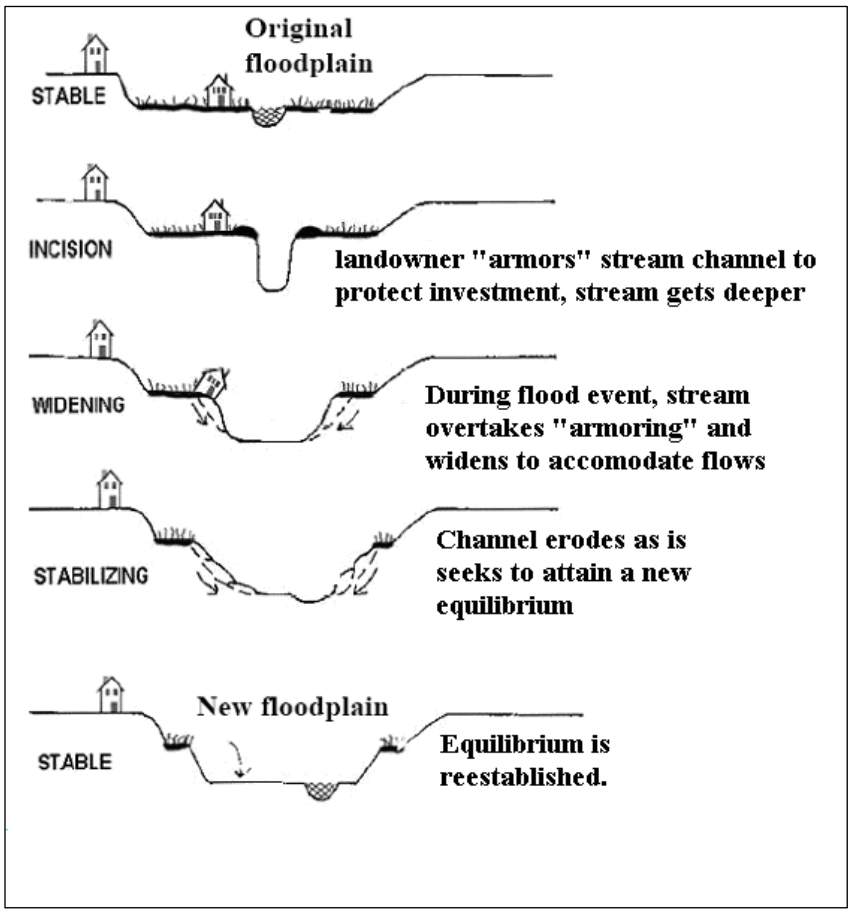
Table 3.2 List of water quality impairments affecting the use of surface waters in Berkshire as designated by the 2008 303d list.

Stream Section	Pollutant	Impaired Use	Water Quality Problem
Berry Brook, mount up to and including North Tributary (Approx. 1 Mile)	Sediment, Nutrients, E. Coli	aquatic life support, contact recreation (i.e. swimming)	Agricultural runoff, Aquatic Habitat Impacts
Godin Brook	Sediment, Nutrients, E. Coli	aquatic life support, contact recreation (i.e. swimming)	Agricultural runoff, Aquatic Habitat Impacts
Samsonville Brook	Sediment, Nutrients, E. Coli	aquatic life support, contact recreation (i.e. swimming)	Agricultural runoff, Aquatic Habitat Impacts
Trout Brook, Upstream from mount for 2.3 miles	Undefined	aquatic life support	Agricultural runoff
List of water quality impairments affecting the use of surface waters in Berkshire in need of further assessment in 2008.			
Pike River	Sediment, Nutrients, E. Coli	Aesthetics, aquatic life support, contact recreation (i.e. swimming)	Quebec & Vermont Agricultural runoff
Missisquoi River, Tyler Branch to Richford	Sediment, Nutrients, E. Coli, turbidity	Aesthetics, aquatic life support, contact recreation (i.e. swimming)	Non-point source contributions from U.S. and Quebec, Streambank erosion, Agricultural activity
Trout River, from mouth to 6 miles upstream	Sediment, Nutrients, E. Coli	Aesthetics, aquatic life support, contact recreation (i.e. swimming)	Agricultural runoff, Streambank erosion, Morphological instability

In a healthy watershed, streams are able to maintain a state of equilibrium and can carry the water, sediment and debris, even in high flows, without dramatic changes in depth, width or slope. These streams have access to floodplain, a low-lying area adjacent to the stream, where floodwaters can go. When streams become heavily modified and floodplain areas are developed or filled, the streams are taken out of equilibrium. Often they can become deeply incised, water velocity and erosion can increase, and the stream can become capable of creating greater flood damage. This process of stream channel evolution, which can be seen occurring throughout the Missisquoi and Pike River

Watershed, is shown in Figure 3.3.

Figure 3.3 Stream Channel Evolution



Local conservation efforts are taking place around Berkshire's waterways to improve water quality. The Missisquoi River Basin Association (MRBA), a local volunteer organization has formed partnerships with the federal Fish and Wildlife Agency and the Natural Resources Conservation Service to carry out various projects to protect water quality and recreational opportunities throughout the Mississquoi Watershed.

Data has been collected by the Vermont DEC River Management Program about the physical condition of the mainstem of the Missisquoi River, Trout River, and the Pike River. These studies, called stream geomorphic assessments, document a stream's general characteristics, including width, slope, streamside vegetation and streambed materials, as well as issues impacting the stream, including erosion, modifications of the stream channel, the presence of bridges and culverts, etc. This comprehensive information about a river can provide important baseline data from which restoration projects and needs assessments can be determined.

In order to protect local streams, restore equilibrium, and improve water quality, a number of strategies can be employed:

1) Limit development in the floodplain.
    a) Berkshire currently requires that new development be setback at least 100ft from any river, stream, lake, or pond.
    b) The Vermont DEC works with landowners in the watershed to place conservation easements on land within the river corridor which prohibit future development

c) Berkshire participates in the National Flood Insurance Program (NFIP) and administers flood hazard bylaws.

2) Maintain vegetated buffers along stream channels. Vegetation along the streambank can help to naturally stabilize the stream, to filter out pollutants before they reach the stream, and to provide habitat.
   a) The Natural Resource Conservation Service (NRCS) offers the Conservation Reserve E Program (CREP), which provides funding and technical assistance to farmers to plant stream buffers.
3) Properly size public and private bridges and culverts.
   a) Berkshire administers a road ordinance with minimum bridge and culvert standards.

Ground Water

Ground water is currently the source of all drinking water in Berkshire. Most ground water comes from rain and snow that seeps into sandier soils and cracks or spaces in underlying bedrock, which then travels into storage areas called aquifers. In this way, the ground water supply is replenished or recharged. The water table defines the upper limit of saturation, and may vary with the seasons. Areas covered with glacial till, which include much of Berkshire, are usually poor recharge areas due to the high clay content of the soils and the presence of a fragipan. More permeable sand and gravel deposits such as those in the western part of Town, and fractured bedrock at higher elevations with little soil cover, are generally good recharge areas.

Figure 3.4
Potential Ground Water
Recharge Areas in Berkshire

Possible Gravel Recharge Areas

1) Extending from the Canadian border to the Enosburg Town line, following the glacial isolated kame terrace. It includes within its area West Berkshire Village, Mineral Book, the lower Pike River, and the Enosburg Village Forest and reservoir. Overlying this recharge area are mostly Windsor-Missisquoi soils and a small amount of Limerick-Rumney Variant-Winooski soils. State geologists have identified this area as having high potential for ground water supply.
2) North of East Berkshire on both sides of Route 105. Overlying these are Au Gres-Enosburg-Wareham soils, and Windsor-Missisquoi soils.
3) In the northeast corner of the town, overlain by Scantic-Raynham-Binghamville
4) In the southeast corner of the town, overlain by Windsor-Missisquoi soils.

Probable Bedrock Recharge Areas

1) In the hills (including Ayers Hill) between the North Road and Lost Nation Road.
2) In the southwest corner of Town on the hill near the Missisquoi and Trout Rivers.

Defining actual areas with good potential for water supply is a difficult and

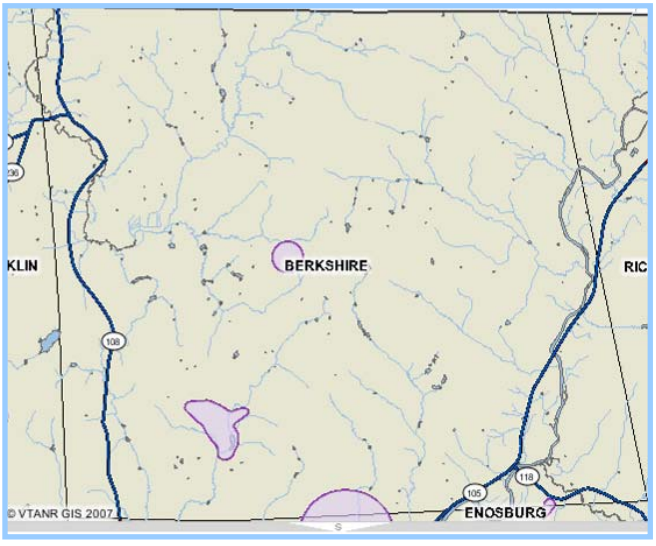
expensive task, requiring large amounts of field survey work and data analysis. Consequently, areas with potential for good groundwater recharge are designated based on soil cover and existing knowledge of the underlying bedrock. Severel "probable" and "possible" good recharge areas have been identified in Berkshire and are listed in Figure 3.4.

Ground water feeds rivers, lakes, and wetlands, appears at the surface in the form of seeps or springs, and is often pumped out of the ground for human use. Since ground water is usually less easily polluted or contaminated than surface water, it is a valuable source of drinking water. As noted earlier, Berkshire depends heavily on ground water for its water supply.

It is important to note; however, that human activity occurring in a recharge area can affect the quality and quantity of the ground water supply. Paving large areas of land or pumping too much water can deplete the supply. Leaking septic systems and underground gas tanks, road salt, industrial wastes, and agricultural applications of chemicals are common sources of ground water pollution. Once a ground water system is contaminated, cleaning it up is very expensive and difficult, if not impossible.

The Federal Source Water Protection Program was established to protect groundwater that supplies public drinking water systems. Since 1985, the delineation of Public Water Source Protection Areas (SPA) has been required for all proposed new sources for Public Community Water Systems. This program emphasizes proper management of lands within Source Protection Areas to reduce or restrict potentially contaminating activities. The State also has the Groundwater Protection Rule and Strategy that was adopted in 2005. This provides restrictions, prohibitions, standards, and criteria for a groundwater protection.

Source Water Protection Areas



Map 3.11

There are four Source Water Protection Areas in Berkshire (See Map 3.11), two of which are protected through local zoning. This plan proposes to add the remaining two source protection areas to the zoning regulations to afford them equal protection. The Source Protection Areas include one located on the north side of Reservoir Road associated with two gravel wells that supply

the Enosburg Falls Water System. A second area is located on the border of Berkshire and Enosburgh between Perley and Woodward Neighborhood Roads and is associated with spring supplying the East Berkshire Water Coop. A third area is associated with the water supply for the Dairy Center. It is located on the border of Enosburgh and Berkshire surrounding the Dairy Center on Route 105. Finally, the fourth area is associated with the Berkshire Elementary School and surrounds the School.

Critical Areas

Critical areas, for the purposes of this plan, are defined as natural areas requiring special protection from development. They include areas that have environmental, ecological, educational, and/or scenic value, such as wetlands, shorelands, flood hazard areas, important wildlife, and endangered or threatened species habitats, and other areas of biological, hydrological, or geological significance.

Wetlands

Four large wetland areas are located in Berkshire (see Map 3.12). Two are located along the Pike River and Mineral Brook, another is found on the south side of the Berkshire-Richford Road near Lost Nation Road, and the fourth is located east of Lost Nation Road. Wetland areas are defined by the state as "those areas ... that are inundated by surface or ground water with a frequency sufficient to support vegetation or aquatic life that depend on saturated or seasonally saturated soil conditions for growth and reproduction" (10 V.S.A. 902). This definition includes but is not limited to marshes, swamps, sloughs, potholes fens, river and lake overflows, mud flats, bogs, and ponds.

Wetlands are indispensable but fragile natural resources. They are important for a variety of reasons. They provide temporary storage for floodwaters and thereby reduce flooding and protect the quality and quantity of ground water. They improve surface water quality by storing organics, chemically breaking down or removing pollutants, and filtering eroded sediments. They provide spawning and feeding habitat for fish and other aquatic life, and a wide diversity of habitat for other wildlife, including waterfowl, birds, mammals, furbearers, amphibians, and reptiles. Wetlands also provide habitat that may be critical for the survival of rare, threatened, or endangered species, valuable resources for education and research in the natural sciences, and a diversity of recreational opportunities and economic benefits. Finally, wetlands contribute to community open space, and the overall beauty of the landscape.

The U. S. Fish and Wildlife Service, using color infrared aerial photography, identified nearly 200 smaller wetland areas scattered throughout Berkshire. These are located on National Wetlands Inventory Maps. Most of these wetlands are small marshy (palustrine) areas, characterized by open water,

emergent plant growth (e.g., aquatic plants), forested cover, or shrub and scrub growth.

Not every wetland area supports all wetland functions; however, critical functions may be performed by a particular wetland, or by an aggregate of smaller wetland areas within a larger area. The State's Water Resources Board, as required by state (10 V.S.A., Chapter 37, Section 905), has adopted Wetland Rules for the identification and protection of Vermont's significant wetlands (last updated in 2002). Under these rules, all wetlands in Vermont are designated as Class I, Class II or Class III wetlands (Figure 3.5). There has not been any Class I wetlands proposed in Berkshire yet. There are many wetlands identified in Berkshire designated as Class II (See Map 3.12).)

Figure 3.5
State Wetland Classification

Class I -include those wetlands that the Board finds make an exceptional or irreplaceable contribution to Vermont's natural heritage.

Class II -includes those wetlands which are either valuable only in the aggregate, or which are may be so significant that they merit protection in and of themselves, but are not so exceptional or irreplaceable that they qualify as Class I wetlands. As proposed, this would include any wetlands found on the National Wetlands Inventory Map, except for those classes specifically excluded.

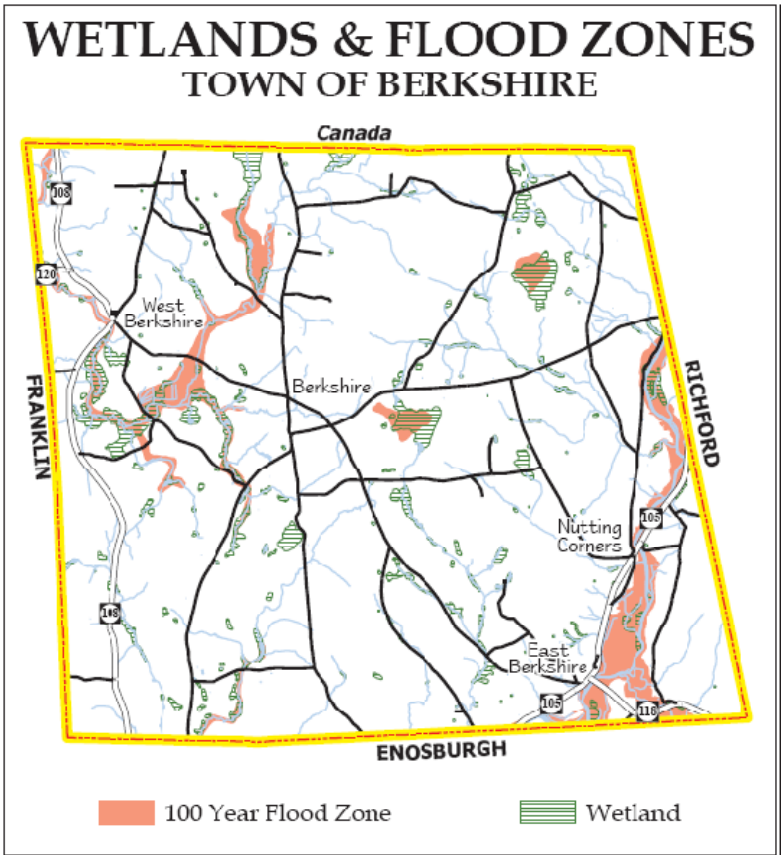
Class III -includes those wetlands that are not designated Class I or Class II wetlands.

The State will regulate land use within designated wetland areas (Class I and Class II) and will require buffer strips that protect these wetlands from potential adverse impacts of adjacent land uses. Activities that will not adversely affect the functions and values of these wetlands are permitted. Farming activities now taking place within a designated wetland are exempt from these rules.

The local planning commission is responsible for undertaking studies, making recommendations on wetland protection, and indicating those areas proposed for protection within its municipal plan. The municipality, a municipal conservation commission, an affected landowner, or a group of 15 or more interested persons can petition the Board of Water Resources to do any of the following: reclassify a wetland to a higher or lower designation; determine which functions make a wetland significant; determine whether the size or configuration of a buffer strip should be modified; or determine the final boundaries of any significant wetland.

Flood Hazard Areas

Flooding is a natural occurrence. The Missisquoi River and many of its tributaries flood in the spring of each year, as snow melt and spring rains cause them to overflow their banks. Ice jams also contribute to flooding on the Missisquoi; and, though they have not caused any major damage in Berkshire, jams have contributed to field and overbank erosion. The most severe flood on record occurred in November 1927. A storm brought 3.2 inches of rain in 24 hours, and a total of 6.32 inches over its entire duration. Many Berkshire residents had to be evacuated from their homes by boat. Farms in the community lost much of their livestock, and bridges, including the Nutting Bridge beyond East Berkshire and a number of covered bridges, were swept away (Flood Insurance Study, Town of Berkshire, Federal Emergency Management Agency, 1980).



Map 3.12

The flood plains of the Missisquoi River are largely undeveloped areas of marsh and woodland, or land that is in agricultural use. East Berkshire is the exception, with a dense population that is subject to major flooding. The three bridges that cross the Missisquoi in Berkshire are not likely to flood; however, portions of the state highways and recreation trail are.

As indicated in the discussion on maintaining stream equilibrium, construction within floodplain areas has several negative impacts, including restriction of flood flows and decreases in flood storage capacity. Impervious surfaces, such as driveways and roofs, hamper the ability of floodplains to absorb water, and to assimilate nutrients from residential and agricultural runoff. The Federal Emergency Management Agency (FEMA) requires communities who participate

in the National Flood Insurance Program to adopt flood hazard regulations, which is structured to minimize risk to life and property. Participation in the NFIP is required for property owners to become eligible for federally-backed mortgage loans and flood insurance.

Berkshire has incorporated Flood Hazard Area Regulations into their Zoning Bylaws and Subdivision Regulations, which place an additional set of regulations on areas of Special Flood Hazard (the 100 year floodplain) as identified on the FEMA Flood Insurance Rate Maps. While the FEMA maps indicate areas that are at risk of inundation by floodwaters, they may not adequately identify areas at risk of erosion. To address this issue, the Vermont Agency of Natural Resources (ANR) is using the results of geomorphic assessments to map fluvial erosion hazard (FEH) corridors. Limiting development within these areas will minimize risk and provide streams the opportunity to reestablish a stable, equilibrium condition. Maintaining vegetated buffers around waterways also helps to minimize risk to property and provides water quality benefits. FEH maps provide a way to identify the appropriate buffer width needed to protect a river corridor.

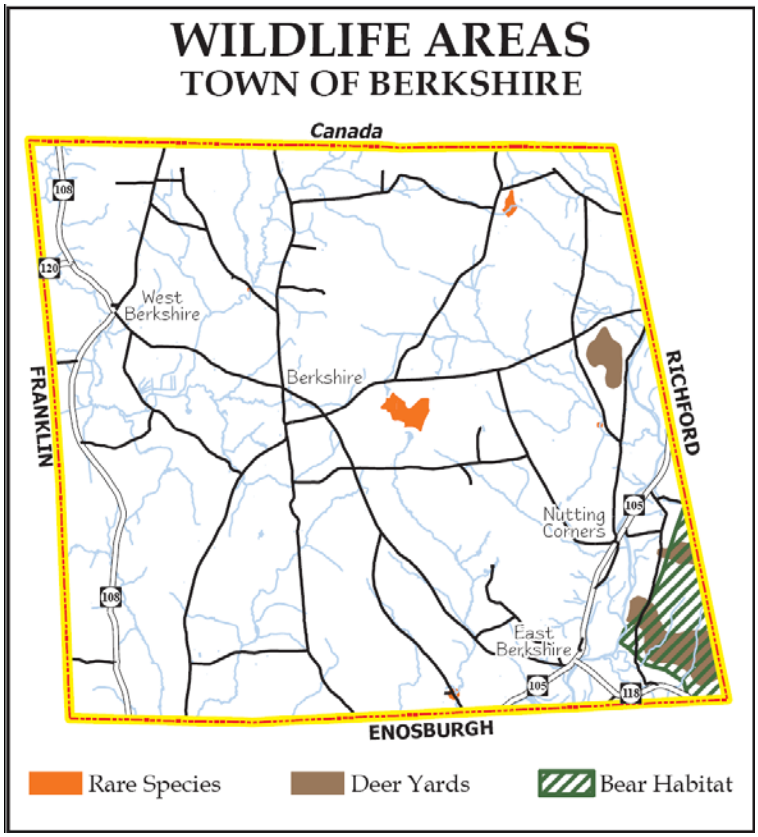
Wildlife Habitat

The diversity of existing land use in Berkshire, including open space, wetlands, and wooded areas, supports a variety of common plants and animals. There is no specific data on most of these species. However, ANR has mapped deer wintering yards, three of which have been identified in Berkshire (2006, See Map 3.13). Deer populations rely on softwood shelters at lower elevations having southern exposures to survive the severe winter climate and heavy snowfalls of this area. The amount of suitable habitat is limited, and is in danger of being further reduced by clear-cutting for forestry, agriculture, and development. Farmland abandonment and forest regrowth, on the other hand, could result in a future increase in deer populations.

ANR has also mapped black bear habitat. Black bear populations are limited in Berkshire (compared with those of neighboring towns to the south and east. The black bear is generally wary and seclusive, favoring more remote wilderness areas; however, the VT Department of Fish and Wildlife has identified one large area of bear habitat in the area between VT 105, VT118, and extending through the Richford town line (See Map 3.13). The greatest threat to the black bear in Vermont is uncontrolled development in the form of houses and roads that whittle away existing habitat. Preserving the black bear's remaining habitat in its wild state is critical to its continued existence locally.

The rivers and streams in Berkshire also provide habitat to fish, including brook trout, small mouth bass, and in the case of the Trout River, rainbow trout.

No threatened or endangered species are known with habitat in Berkshire, but as of 2009, four areas supporting rare species habitats have been identified (Map 3.13). To prevent disturbance or illegal collection of these species, specific information on the species is withheld.



Map 3.13

Unique and Fragile Areas

Unique or fragile areas are landscape features other than those already defined that have scientific and/or educational value. In Berkshire, these include three unique geologic features described as follows:

Ayers Hill

This is a singularly unique area of 400 acres on Ayers Hill where the volcanic lava flows and volcanic bombs of the Tibbit Hill formation are readily apparent. Currently, it is in private ownership and is in need of protection. This site is considered to be of state significance for its educational, scientific, and scenic value.

Berkshire Copper Mine

The Berkshire Copper Mine is a 10-acre site associated with the old copper mine that is now considered an important mineral collection area. It is also in private ownership and in need of protection. The site is considered to be of state significance because of its historical, educational, and scientific value.

Berkshire Kettle Hole

The Berkshire Kettle Hole is a well-preserved glacial feature, known as a kettle hole, which formed when a chunk of buried glacial ice melted and left a hollow or depression in the landscape. The Berkshire Kettle Hole is located on a three-acre site southwest of the hamlet of Berkshire. The kettle hole is in private ownership and in need of protection. As a glacial feature, it is considered locally significant.

Because of their significance, these areas should be protected from any type of

development that would affect their character, value, and integrity. Controlled public access, in cooperation with private landowners, should be encouraged for educational and scientific pursuits.

B) HISTORIC LEGACIES

Historic Districts and Structures

Berkshire contains four historic districts and 75 historic buildings and farms, as identified in a survey conducted by the Vermont Division for Historic Preservation in 1983. The four designated historic districts include the three hamlets-- the West Berkshire Historic District, the East Berkshire Historic District, and the Berkshire Center Historic District-- as well as the Montgomery Road Historic District. Site listings, descriptions, photographs, and historic district maps are available in the survey report available at the Town Clerk's Office.

Currently, none of the historic buildings on the index for historic sites for Berkshire have been placed on the State Register of Historic Places. Selection is based upon the "quality of significance" of the building site or district in local, state, and national history, and often comes about through local nominations. Architectural and/or cultural significance, as well as the integrity of location, design, setting, materials, and workmanship, are also factors considered when selecting sites for inclusion in the state register. Properties of special merit may be nominated for inclusion in the National Register for Historic Places. Properties determined eligible for nomination to the National Register are automatically placed on the state register. Inclusion on these registers can result in some public financial support for restoration, preservation, and protection activities.

The Berkshire Historical Society conducts local research, assists in updating the sites and structures survey, and makes recommendations for historical register nominations. The Society gathered information about the history of Berkshire to include in a book. The book was published in 1994.

The Historical Society was responsible for initiating the restoration of the Town Hall. Based on their investigation, the Selectboard decided to seek funding for the project. They applied for and received a grant through the historical preservation grant program. Along with a bond measure and additional funds from an Accessibility Modifications Community Development Block Grant (CDBG), the project was fully funded. The Town Hall renovation was completed in 2007. The Town Offices as well as meeting space are currently located there.

Archaeological Sites and Sensitive Areas

Archaeological sites serve as tangible clues to the past and are important

cultural resources for their historical, educational, and scientific value. They provide information about how people coped with changing environmental and cultural conditions, including changes in the climate, population stress, and the introduction of new technologies.

The archaeological record includes both prehistoric Native American sites and historic remnants of European settlement. Evidence of Native American settlement and activity is typically contained within upper soil layers, but may be deeply buried underneath floodplain deposits. The archaeological record also includes the ruins, materials, and evidence of life left behind by explorers, soldiers, and settlers of European descent that once passed through or settled in Berkshire. The ruins and buried remains of 18th, 19th, and early 20th century buildings, structures, encampments, landscape features, garbage areas and other activity sites comprise Berkshire's historic archaeological heritage. Archaeological sites are often the only source of information for the longest part of human activity in Vermont.

Because these sites are not readily visible, archaeological sites are difficult to locate and may be unintentionally destroyed during construction and development; archaeological sites are being destroyed at an alarming rate throughout Vermont and New England. They are fragile, endangered, and nonrenewable. Once a site is disturbed, its value for scientific research is largely lost. Accordingly, archaeological sites and lands need to be considered in the planning process, and protected from the adverse impacts of growth and development.

Unfortunately, it is not known where most archaeological sites in Berkshire are located. Locating specific sites often requires a lot of historical research, and in the case of most prehistoric sites, field investigations, and surveys. The State's Division of Historic Preservation has identified archaeological “sensitive areas” in the Town based upon the results of past field investigations and research in nearby areas. Most prehistoric sites and many historic sites as well, are located near water, since water was a necessary resource and the focus of many activities. The Missisquoi River and its tributaries, and the Pike River are considered especially sensitive. It is important to note, however, that sites once located on waterways now often lie up to a 1000 feet away from present day watercourses because the location and shape of river channels have changed over time.

It is difficult to predict the location of these sites but once found they should be protected since they constitute essential links to the recent and distant past. Any activity within sensitive areas should be carefully monitored; and finds or artifacts uncovered in the course of development anywhere within the Town should be immediately reported to the State Archaeologist so that their location

can be recorded and a determination can be made regarding their significance.

C) LAND USE PATTERNS

The Town of Berkshire exhibits a traditional agrarian landscape with agriculture and forestry a vitally important element of the community's character. Family dairy farms and rural homesteads are woven together with the foothills and forests of the Green Mountains, the historic villages of Berkshire Center, East Berkshire, and West Berkshire, and the views seen along the corridors of town highways to create a unique sense of place. Regionally, the Town's rural character aids in defining the more urban character of its neighboring communities of Enosburg Falls and Richford.

Table 3.3 Berkshire Town Land Use Land Cover

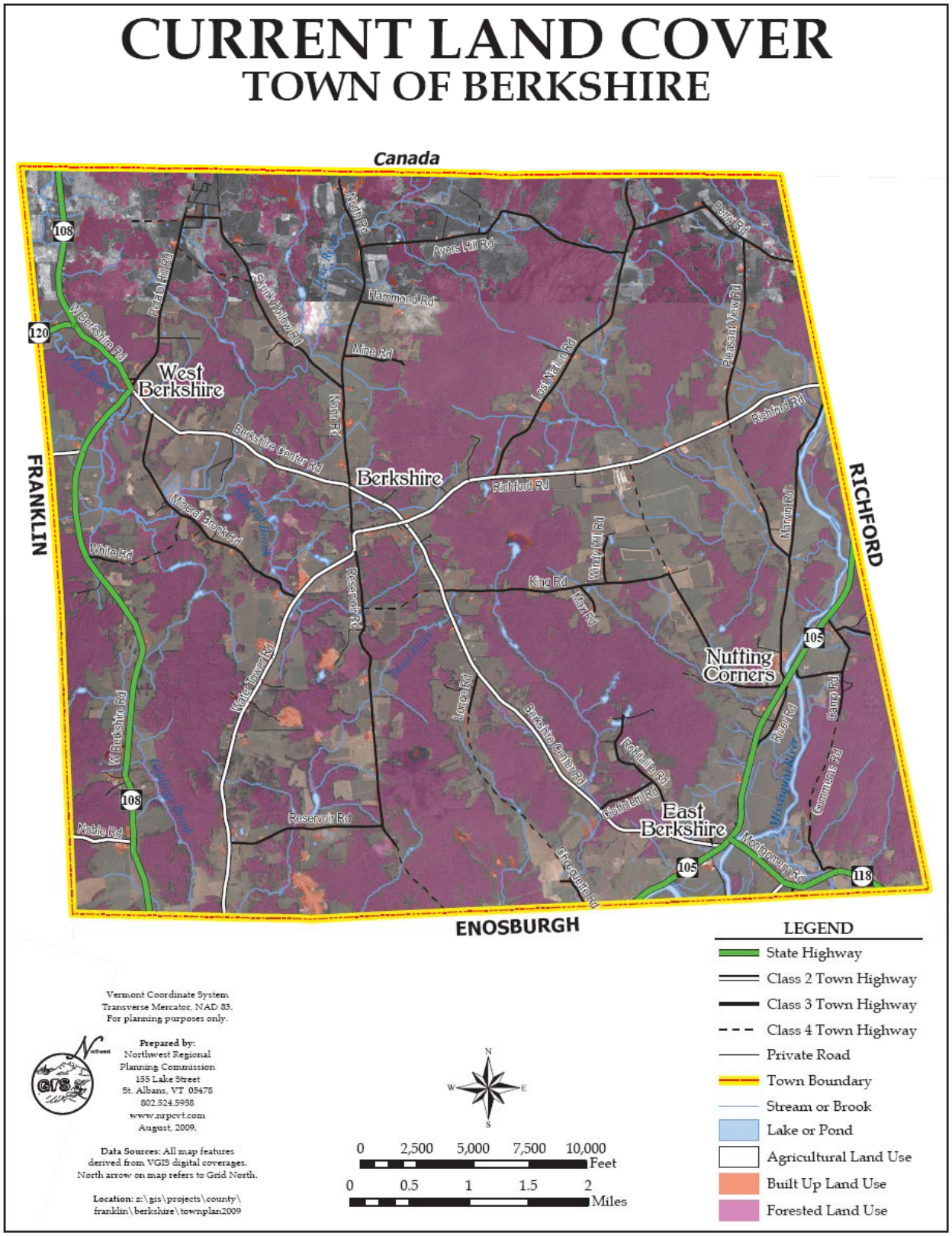
	Acres	Percent
Residential	711.067	2.65%
Commercial	8.334	0.03%
Other Urban	1.332	0.00%
Tranportation/Utilities	629.131	2.34%
Decidous Forest	3664.045	13.65%
Coniferous Forest	2552.990	9.51%
Mixed Forest	4311.748	16.07%
Forested Wetland	755.363	2.81%
Non-Forested Wetland	242.982	0.91%
Row Crop	7067.863	26.34%
Hay/Pasture	5409.608	20.16%
Other Agricutural	5.736	0.02%
Barren Lands	15.744	0.06%
Water	1461.392	5.45%
Total	26837.335	100.00%

Data Source: 2003 LANSAT satellite Imagery

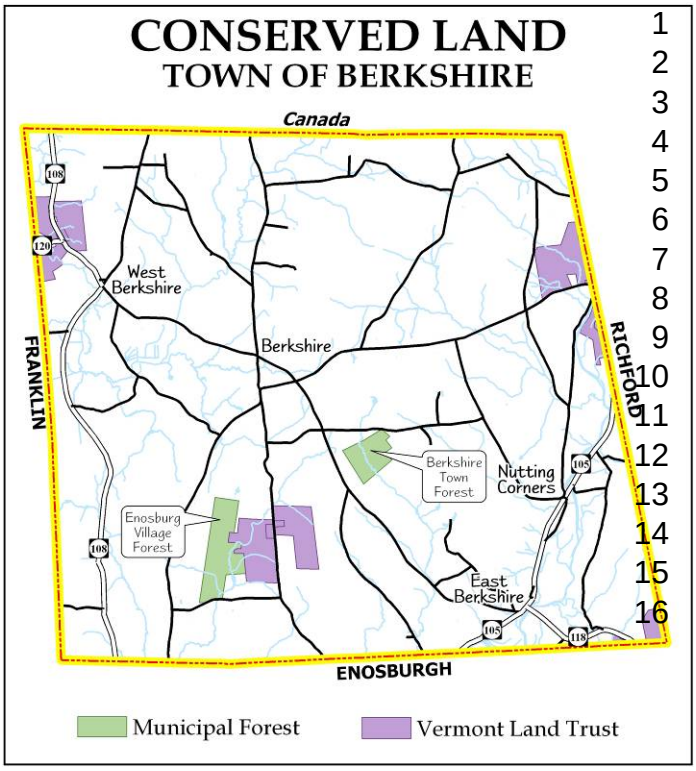
This section provides a description of the location and extent of existing land uses within Berkshire, including agricultural land, forested land, and land in residential, commercial, and industrial development. This information is based upon field surveys and observations, conversations with local residents, and town records. Orthophoto maps also provide an important resource for land use planning; the most recent photos in Berkshire were taken in 2003. Various state agencies, the Extension Service, and the Soil Conservation Service have also provided information with regard to specific land use categories.

Agricultural Land

Many Berkshire farms have been in the same family for decades, and some have been owned by the same family for over one hundred years. The Hammond Farm, the Hoadley Farm, the Howard Stanley Farm, and the Ewins


CURRENT LAND COVER
TOWN OF BERKSHIRE
Canada
FRANKLIN
RICHFORD
ENOSBURGH
West Berkshire
Berkshire
Nuffing Corners
East Berkshire
108
120
105
118
LEGEND
State Highway
Class 2 Town Highway
Class 3 Town Highway
Class 4 Town Highway
Private Road
Town Boundary
Stream or Brook
Lake or Pond
Agricultural Land Use
Built Up Land Use
Forested Land Use
Vermont Coordinate System
Transverse Mercator, NAD 83.
For planning purposes only.
Prepared by:
Northwest Regional
Planning Commission
155 Lake Street
St. Albans, VT 05478
802.524.5958
www.nrpcvt.com
August, 2009.
Data Sources: All map features
derived from VGIS digital coverages.
North arrow on map refers to Grid North.
Location: z:\gis\projects\county\
franklin\berkshire\townplan2009
0 2,500 5,000 7,500 10,000 Feet
0 0.5 1 1.5 2 Miles

Map 3.15



Map 3.16

Most of the primary agricultural land in Berkshire, including large tracts along Rte. 105 in the eastern half of Town and along major roads in the western half, is currently in production. However, some agricultural lands on roads leading northward from Enosburg Falls and East Berkshire have been given over to residential development.

Both the amount of land in agriculture and the number of farms has been decreasing over the last 20 years in Berkshire. According to the grand list, the amount of land in agriculture has not decreased as sharply as the number of recorded farmland parcels. The amount of land in agriculture according to the grand list decreased from approximately 17,500 acres in 1999 to approximately 11,700 acres in 2010. In comparison, the number of recorded farmland parcels decreased from 177 in 1987, to 88 in 1999, to 55 in 2010. This trend is

Farm are all classified as "Century Farms" based on the fact that they have remained in the same family for a century or more. Berkshire is also home to some of the largest dairies in Franklin County, and in the State. Brouillette Farms, Inc. in East Berkshire is an example. The farm is now owned by Hans Weibel and milks over 500 head of cattle. They manage a herd of over 600 animals. Dairy farming has remained vitally important to Berkshire's economy to the present day.

There are 59 parcels in the Current Use Program located in Berkshire, which total 9,330 acres. The current use program allows the valuation and taxation of farm and forest land based on its remaining in agricultural or forest use instead of its value in the market place.

Land trust easements are an effective method used in Vermont to preserve agricultural land and provide financial compensation to the landowner. Individual landowners sell certain rights to their land to ensure their land will be kept for use as farmland, conservation, or recreation land in perpetuity. As of December 2004, there were 1,449 acres of land with a Vermont Land Trust easement or covenant in Berkshire.

experienced statewide as farms consolidate into fewer larger farms. While the issues associated with the decrease in the family farm and the viability of farming in Berkshire are largely beyond the control of the Town, the Town can support and promote programs that assist farmers to keep their land in production, such as the land trusts, the current use program, state and federal subsidies and incentives, and local zoning controls.

Forest Land

At one time, before clearing began for agriculture, Berkshire was covered by mature hardwood and softwood forests. Now forest or woodland makes up roughly 40 of total land area in Berkshire (Landsat satellite imagery, Table 3.3). Most of this acreage is found on the ridges and hilltops of north central Berkshire, and on other areas of steep slope or wet soil scattered throughout the Town. Little of this land is suitable for higher density development.

All of the forested land in Berkshire, except for that in the Berkshire and Enosburg Town forests, is privately owned (see Map 3.16 for location of Town forests). There are no commercial forestry operations in Town at present; however, the potential exists. As noted earlier, many of the forested soils in Berkshire are considered highly productive (Type I and Type II) soils for forest growth, although timber stands would have to be properly nurtured and managed for commercial use. Many landowners now manage their woodlots on a much smaller scale for private use. All forestland owners are encouraged by the State to adopt Acceptable Management Practices (AMPS) for maintaining water quality, and a long-term forest management plan. At present, no management plan has been developed for the municipal forest.

Berkshire forests provide wood for fuel and construction, and recreational opportunities for hikers and hunters. They also serve a number of important environmental functions, which include providing important wildlife habitat, preventing soil erosion in areas of steep slope, and maintaining surface and groundwater quality. The Town's forests and woodlands add to the diversity of the natural environment and local landscape, providing an appealing and necessary change from open fields and the built environment.

Residential Land

Residential development is concentrated at the highest densities on relatively small lots (one acre or less) in Berkshire's three hamlets: West Berkshire, East Berkshire, and Berkshire Center. Of the three, East Berkshire is the largest. There is a growing trend, however, toward residential "strip development" (2 or more housing units per 1000 ft. of road frontage), particularly along roads leading northward from Enosburg Falls and East Berkshire. This type of rural residential development is increasingly common in many Vermont communities, and is in

part determined by the need for road access and on-site systems, and the desire for more privacy. Lot sizes vary greatly, from newly created lots of an acre or less to farmhouses sitting on large tracts of land (which are generally included with farms in the agricultural designation). This type of development; however, is often inefficient in its requirements for land and utilities, and is therefore more expensive to purchase, own, service, and maintain. It also limits access to hinterlands, and detracts from the traditional pattern of clustered settlement within hamlets and villages.

Commercial and Industrial Land

There is very little commercial and industrial land in Berkshire. The commercial land that exists is located primarily in East Berkshire on relatively small lots. There are also a few lots in West Berkshire and Berkshire Center occupied by commercial enterprises. Berkshire is not yet afflicted with the commercial strip development that has begun to plague other communities, though the potential for such development exists, particularly on Rte. 105 coming from Richford.

It is expected that most commercial and industrial development will continue to be centered outside of Berkshire in the villages of Enosburg Falls and Richford. The need exists for limited commercial and possibly some light industrial development within the Town to diversify its economy and tax base. This type of development also should be clustered on suitable land near existing centers in order to prevent strip development and sprawl, and again, soil conditions in Berkshire, particularly in East Berkshire where most commercial development is likely to occur, are a limiting factor.

Public and Semi-Public Land

Roughly three percent of the land in Berkshire is in public or semi-public ownership, and most of this is in the Berkshire Municipal Forest, and the Town's road network. Community buildings, including the town clerk's office, the town garage, the fire department, and the Berkshire Elementary School occupy little land. Small acreages of land should be identified near existing facilities to allow for future expansions. Much of the land within present ownership, such as the municipal forest and Class IV roads, could be developed and maintained for community educational and recreational use. As noted earlier, the Town also may want to consider the acquisition of land, development rights, or easements to protect its important resources.

GOALS AND POLICIES: THE SENSE OF PLACE

GOAL 1: To preserve the sense of place in Berkshire, which consists of three concentrated village centers separated by rural agricultural and forest land and limited rural residential development.

GOAL 2: To protect in good quality the abundant natural and historic resources in Berkshire.

GOAL 3: To support the continuation of agriculture and forestry, which contribute to the rural character and sense of place in Berkshire.

Policies:

1) Local climatic and weather conditions, and impacts on local air quality, should be considered in planning for suitable use of the land.

2) Regional, state, national, and international efforts to improve and protect environmental quality should be supported at the local level.

3) Development should be sited to avoid significant geologic features, and to permit future extraction of economically viable sand and gravel deposits.

4) Intensive land development, including structures, should be discouraged on slopes greater than 25% and as much vegetative cover as possible should be maintained.

5) Only site modifications (grading and/or filling) incidental to a project should be allowed, and no modification of surface drainage patterns should occur.

6) To maintain or improve the quality of land through the consideration of soil characteristics in determining its capability for development.

7) Development within agricultural and forested areas should be discouraged on primary agricultural or forestry soils.

8) The use of Best Management Practices (BMPs) in agriculture and Acceptable Management Practices (AMPs) in forestry and logging operations will be encouraged whenever possible.

9) Any development activity that degrades surface and/or ground water

quality will be discouraged.

10) Streams, rivers, ponds, and wetlands should be maintained in their natural state, and be protected from pollution through appropriate health and land use regulations. Local regulations should provide buffer areas to maintain the environmental, recreational, and scenic value of water courses, water bodies, and shorelines.

11) Development within close proximity of streams and rivers should be compatible with the natural beauty of the area, shall protect existing vegetation, shall be set back sufficiently to prevent erosion along stream-banks or pollution from subsurface sewage disposal systems, and where possible shall retain visual and physical access to the water bodies.

12) Development should be carefully sited in areas with a depth to ground water of two feet or less, or in Source Protection Areas (SPA).

13) Critical areas, particularly those of regional and/or state significance, should be protected from the adverse impacts of development.

14) Wetlands should not be drained or filled for development. Any development resulting in the addition of substances that are likely to increase the concentration of materials beyond the assimilative capacities should be prohibited.

15) Development in flood hazard areas is undesirable. Where necessary, development should be designed and located so as not to impede the flow of floodwaters or endanger the health, safety, and welfare of the public. Preferred uses of the land in these areas include agriculture, open space, and recreational uses.

16) The public acquisition of land, development rights, or conservation easements should be considered where appropriate to ensure long-term protection of particularly important critical areas.

17) Places of outstanding historical or educational value should be protected from development that unreasonably impairs their character or quality.

18) Development, which would adversely affect historical resources, including destruction or alteration, isolation from or alteration of immediate surroundings, or the introduction of disharmonious visual, audible, or atmospheric elements, should be discouraged.

19) Rehabilitation of significant historic sites and structures should be en-

couraged; and adaptive use of historic structures should be emphasized whenever it is economically feasible.

20) The public should be encouraged to participate in the identification of historic sites and structures, and in planning to preserve the Town's cultural heritage.

21) Public uses and/or ownership should be sought to preserve historic sites and structures that are particularly significant to the community.

22) The State's Division for Historic Preservation should be notified if development is proposed within any area identified as being archaeologically sensitive or historically significant; or if cultural artifacts or features are discovered during the course of development.

“East Franklin/Berkshire Townline” Photo By Arnold Byam

A PLACE FOR A HOME

A) EXISTING HOUSING STOCK

Housing in Berkshire is a mix of isolated, rural residences and farms and small, clustered settlements in the hamlets of West Berkshire, Berkshire Center, and East Berkshire. When the 2000 U.S. Census was taken, there were 520 year-round housing units, including 36 apartments units, and 102 mobile homes. This represents an 18.5% increase in year-round units since 1990, a rate higher than all surrounding communities (Table 4.1). There are also 30 seasonal units, which comprise 5.5% of the total housing stock. The number of seasonal units has decreased 14.3% since 1990. Berkshire has fewer seasonal housing units than its neighboring communities, while Franklin and Montgomery, with high seasonal percentages due to Lake Carmi and Jay Peak, have fewer year-round units.

Table 4.1. Housing Units

	1990		2000		% Change Year Round (90-00)	% Change Seasonal (90-00)
	Year Round	Seasonal	Year Round	Seasonal		
Berkshire	439	35	520	30	18.5	-14.3
Franklin	381	296	445	291	16.8	-1.7
Enosburg	1059	56	1,085	64	2.5	14.3
Richford	901	67	965	52	7.1	-22.4
Montgomery	375	181	441	225	17.6	24.3
Franklin Co.	15,181	2,069	17,251	1,949	13.6	-5.8
State	225,809	45,405	251,322	43,060	11.3	-5.2

Data Source: U.S. Census, 1990, 2000

According to the U.S. Census, much of the growth in Berkshire's housing stock has occurred recently, beginning between 1970 and 1980 when the housing stock increased by 42%. Since 1980, the housing stock has maintained relatively higher rates of growth than pre-1970 at 13 and 16%, respectively each decade.

B) HOUSING PROJECTIONS

Berkshire is expected to grow as a bedroom community to supply housing to workers in adjoining and nearby towns. According to 2000 U.S. Census data, 18% of Berkshire workers are employed in Enosburg, 17% are employed in St. Albans City or St. Albans Town, and 10 % work in Richford. Another 14% of Berkshire workers commute to Chittenden County. Based on existing household sizes (roughly 2.6 persons per year-round housing unit according to the 2000 U.S. Census) and current population projections, Berkshire should need at least

about 150 new year-round units by the year 2010 and another 200 by the 2040 to house the projected population. From 2000 to 2007, Berkshire passed an average of 15 building permits for new housing units. However, in 2006, 2007, and 2008, the number of building permits fell to only 5 per year. This may be a local reflection of the nationwide subprime mortgage crisis and subsequent economic downturn.

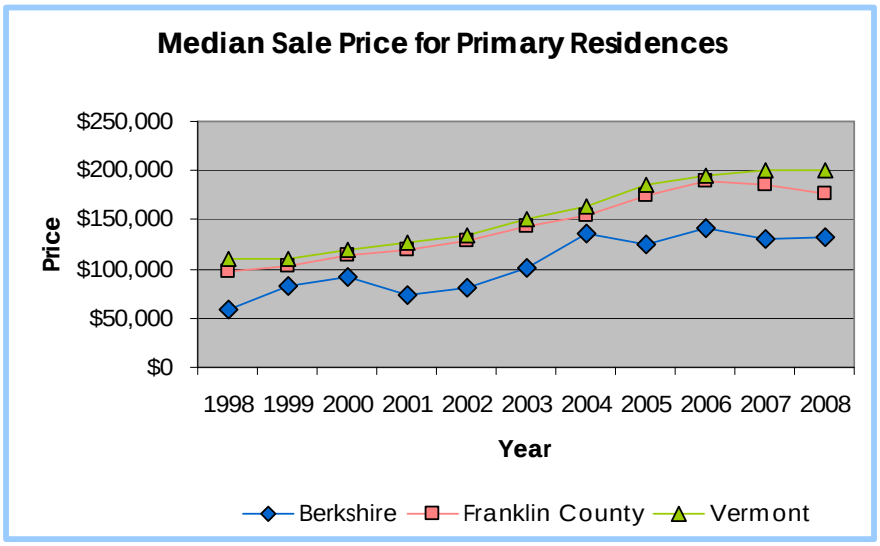
C) HOUSING CONDITIONS

The condition of the Town's housing stock varies greatly, from older, decaying homes to brand new structures. Many of the older houses in Town are well built and provide relatively safe housing; a number have been restored to good condition. According to the 2000 U.S. Census, nearly 40% of all housing units in Berkshire were built before 1939. Over half were constructed during the Town's biggest growth period since the mid 19th Century, between 1970 and 2000. The condition of a home is directly related to the availability of funds to restore and maintain it. The Town should consider setting up a housing rehabilitation program, funded with state assistance (e.g., Vermont Community Development Program, or the Lake Champlain Housing Trust Revolving Loan Fund), to improve the existing housing stock, particularly for lower and moderate income residents. Such programs have been successful in other communities in the state.

D) HOUSING COSTS AND AFFORDABILITY

Housing prices locally are increasing at a faster rate than household income, making housing less affordable for more and more Berkshire residents. According to property transfer records, median sale prices for primary residences in Berkshire has more than doubled from $59,000 in 1998 to $133,000 in 2008 (Figure 4.1). While the main reason for the drastic increases in housing sale prices was a booming housing market across the nation, housing sale prices in

Figure 4.1



Source: Property Transfer Records 2009

communities around St. Albans and within and around Chittenden County are much higher than those in Berkshire. The housing market began to level off statewide in 2006 and 2007, and even more so when a recession hit in 2008. While the number of sales and sale prices has decreased slightly since the peak in 2005, the housing market is expected to remain stable in Vermont.

Safe, adequate housing is inarguably one of our most basic needs. It is important to ensure that adequate housing is not the luxury of a select few. Instead, a variety of housing types (in equally various price ranges) needs to be promoted to foster a diverse community, which is not economically exclusive. Housing which is affordable for first-time buyers, senior citizens (often on fixed incomes), and lower income residents is especially important in this regard.

To define affordable housing, the state has determined that 80% of the median household income (or median metropolitan statistical area (MSA) income, if it applies) should be able to afford to pay no more than 30% of their income on housing. This definition is used as an indicator for the availability of affordable housing in a community. Homeownership housing costs include not only the mortgage, but taxes and insurance. In the case of rental units, the cost is defined as rent plus utilities. All of Franklin and Grand Isle County have recently been added to the Burlington-South Burlington MSA. The figures for median income in the MSA; however, do not paint an accurate picture for many of the municipalities within Franklin County, including Berkshire. The 1999 median household income for the Burlington-South Burlington MSA was $46,732, while it was $41,659 in Franklin County (2000 US Census). For this reason, the Northwest Regional Planning Commission uses the county median household income to compute affordability statistics. In 2000, the U.S. Census determined the 1999 median household income in the town of Berkshire to be $37,059. Low income households are those in which income is less than 80% of the median. Approximately 194 households are considered "low-income" in Berkshire (Table 4.2). The 1999 Census provides the most recent figure for household based income.

Table 4.2. Household Income Distribution (1999)

Income	# Households
Less than $30,000	194
30,000 to $99,999	278
$100,00+	28

Source: US Census, 2000

Using the state definition of affordable housing outlined above, Table 4.3 illustrates the income available for homeownership for the median income and 80% of the median income, median sale price for year-round primary dwellings, and the difference between the two, known as the affordability gap. Since there is no current data for household income, the analysis is computed for 1999 and indicates that housing is affordable. Since then, we have seen housing sale prices increase by more than 60% and individual tax returns show that

income has not kept pace (See figure 5.1). The 2010 U.S. Census will allow for a more accurate housing affordability analysis.

Table 4.3 Affordability Gap for Homeownership Costs in Berkshire

1999 County Income		30% of Income Per Month	Taxes & Insurance	Income Available for Housing per Month	5% Down Payment	Maximum Affordable Mortgage	Median Sale Price Primary Residences (1999)	Owner Afford-ability Gap
Median	$41,659	$1,041	$240	$801	$6,713	$140,981	$82,300	$58,681
Low (80%)	$33,327	$833	$240	$593	$4,970	$104,372	$82,300	$22,072

Data Source: Median Household Income (2000 U.S. Census); 2005 median family adjusted gross income (VT Department of Taxes); 2007 median home sale price (Vermont Housing Data); taxes and insurance (NRPC estimate); all other figures computed by NRPC.

There is less information available on recent rental housing costs in Berkshire; however, it is presumed to be more affordable than homeownership. Again, the 2010 Census will allow for affordability analysis.

There are no dedicated low-income or senior housing units within the Town of Berkshire. However, the adjacent communities of Richford and Enosburg Falls have several subsidized low-income and senior housing units. These communities are better suited for low-income and senior housing developments because of their proximity to services and walkable village centers. The Town should concentrate on providing affordable housing opportunities to meet local community needs. Such efforts could include the housing rehabilitation program mentioned earlier, providing for some higher density and multiple housing unit development within the Town, and also participation in a local or regional community land trust, a cooperative effort between public and private interests. Funds, subsidies, or loan guarantees available through such programs as the Farmers Home Administration (FmHA), the Vermont Housing Finance Agency (VEFA), the state's Housing and Conservation Trust Fund (HCTF) and Community Development Block Grants (CDBG), are also intended to assist individuals and communities in meeting their affordable housing needs.

GOALS AND POLICIES: A PLACE FOR A HOME

GOAL 1: To provide safe and affordable housing for all segments of the population.

Policies:

1) There should be a diversity of housing types and a choice between renting and ownership to meet the needs and preferences of Berkshire residents,

2) All primary housing, including both new construction and existing buildings, should be safe, sanitary, and energy efficient. All households should have a sufficient, safe water supply and means of sewage disposal.

3) All new residential construction should be designed and phased so as not to overburden local services and facilities, or negatively impact important natural resources, including primary agricultural land.

4) Where possible, the existing housing stock should be kept as housing and not be converted to other uses. The rehabilitation of existing housing units, particularly for the provision of affordable housing, should be encouraged.

5) Alternative housing finance arrangements and new ways of providing affordable housing should be supported.

6) Second or seasonal home development should be carefully evaluated to determine the potential for conversion to year-round housing, to evaluate associated impacts on municipal facilities and services, and housing affordability for permanent residents of the Town.

"East Berkshire" Artwork By Heather Mckeown

EARNING A LIVING

A) BRINGING HOME THE PAYCHECK

Historically, the presence of deep, fertile soils and the lack of major topographic limitations have encouraged the agrarian trades (farming, forestry, and fishing) in Berkshire. Farming in particular has provided a livelihood for many of the Town's residents (18% of the resident work force in 2000), although it has decreased in recent years. In 1980, 30% of workers were employed in agricultural jobs. Other types of employment for the 659 employed residents recorded in the 2000 Census include manufacturing, retail trade, educational services, and public administration (Table 5.1). Four hundred of these were classified as private wage and salaried workers, the largest category, and 149, or nearly one-quarter, were self-employed. Most of the remaining worked at some level of government, from local to federal.

Table 5.1: Types of Jobs Residents in Berkshire Hold

Industry	1990		2000	
	Count	Percent	Count	Percent
Agriculture, forestry, fishing and hunting, and mining	127	23.2	124	18.8
Construction	40	7.3	43	6.5
Manufacturing	76	13.9	127	19.3
Wholesale trade	33	6.0	17	2.6
Retail trade	60	11.0	45	6.8
Transportation and warehousing, and utilities	34	6.2	29	4.4
Finance, insurance, real estate and rental and leasing	10	1.8	21	3.2
Professional, scientific, information, management, administrative, waste management, and other services	48	8.8	67	10.2
Educational, health, and social services	86	15.7	132	20.0
Arts, entertainment, recreation, accommodation, and food services	0	0.0	20	3.0
Public administration	33	6.0	34	5.2
Total	547	100.0	659	100.0

Data Source: U.S. Census

According to 2000 Census data, 27% of the employed population in Berkshire worked within the town, while 82% worked within Franklin County. Within the County, Enosburgh Town and Enosburg Falls attracted the greatest number of Berkshire workers at 18%, while St. Albans City, Richford, and St. Albans Town followed with 12, 10, and 4% respectively. Outside the County, Chittenden County draws 14% of Berkshire workers, with Essex and Burlington pulling in 5 and

3% respectively.

B) BUSINESS IN BERKSHIRE

There are several types of industry types (as defined by the VT Department of Labor) located within the Town of Berkshire. These industries employ a percentage of the Berkshire workforce, in addition to some workers in neighboring communities who commute to Berkshire. The Vermont Department of Labor reports that there are 14 establishments located in the Town, including construction, retail, and transportation industries (Table 5.2). The number and type of industries located within the Town has not changed significantly over the last ten years.

Table 5.2: Industries by Type in Berkshire (1998 and 2008)

	Number of Establishments		% of Total		Absolute Change
	1998	2008	1998	2008	19980-2008
Private ownership	13	12	81%	86%	-1
Goods Producing	3	5	19%	36%	2
Agriculture, forestry, fishing and hunting	1	1	6%	7%	0
Construction	1	3	6%	21%	2
Manufacturing	1	1	6%	7%	0
Service Providing	10	7	63%	50%	-3
Wholesale trade	2	1	13%	7%	-1
Retail trade	2	2	13%	14%	0
Transportation and warehousing	3	2	19%	14%	-1
Professional and Business Services	1	0	6%	0%	-1
Leisure and Hospitality	2	1	13%	7%	-1
Other services, except public administration	0	1	0%	7%	1
Government total	3	2	19%	14%	-1
Federal Government	1	0	6%	0%	-1
Local government	2	2	13%	14%	0
Total Covered – all ownerships	16	14	100%	100%	-2

Vermont Department of Labor, 2008

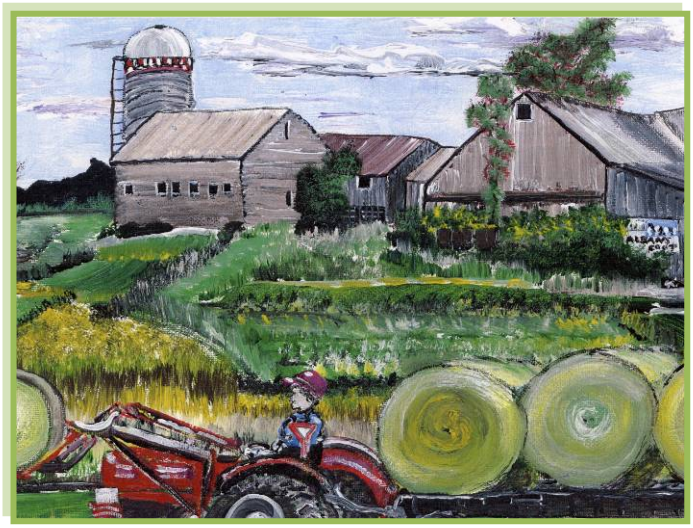
Home Based Businesses

Home based businesses are a major component of the local economy. Home businesses, or home occupations, are especially common in rural towns like Berkshire where many people work from their homes, either as a primary or supplemental source of income. The advent of telecommuting, home offices,

and flexible job scheduling has made working from home even more prevalent. Improving access to high-speed internet and cell service will increase the viability of home based businesses.

Agriculture

The Town of Berkshire remains one of the most important agricultural communities in Franklin County despite a decline in farming as a source of employment over the last few decades. Though the number of active farms in the Town has declined in recent years, in part due to the federal government's five-year "Whole Herd Buy-out Program" that began in 1985, the discontinuation of the Northeast Dairy Compact in 2001, and the volatility of the price of milk, there are still 55 parcels of land used for farming totaling 11,711 acres remaining in Berkshire (2010 Grand List). As previously noted, these figures have been decreasing over the past 20 years. National and international economic pressures affecting the price of milk and the competiveness of smaller farms continue to make farming increasingly difficult on Berkshire farms. Agricultural enterprises in the area other than dairying include maple sugaring, beef and veal production, vegetable production, and cheese making.



Artwork by Heather McKeown

Manufacturing and Service Industries

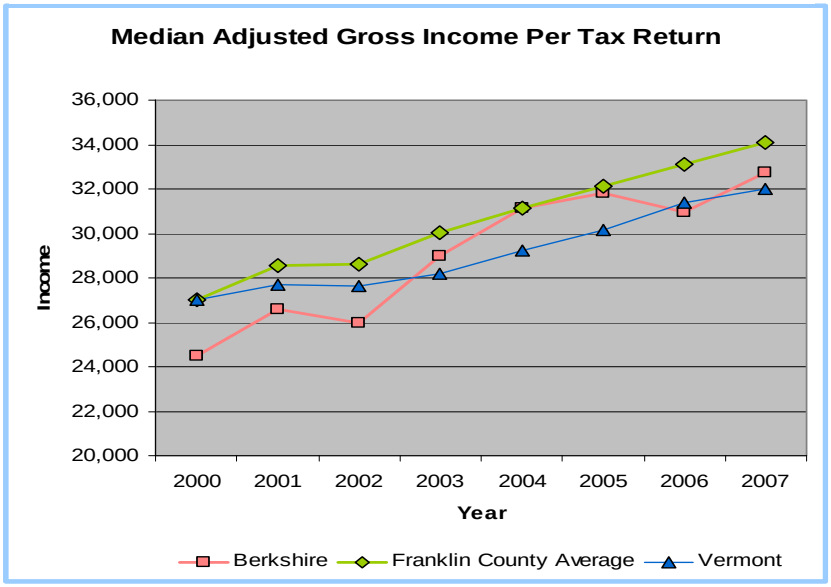
The settlements of Berkshire, East Berkshire, and West Berkshire provide a minimum of goods and services, primarily gas and food, but also home furnishings and car repair. Based on local knowledge, commerce in the town consists of one small home improvement store, several beauty salons, two convenience stores, two gas stations, a snack bar, two auto-repair shops, a maple specialty shop, a dog kennel and a real estate office. Additionally there is a woodworking business as well as a plumbing and heating contractor and a saw mill Town residents travel to the larger commercial centers of Enosburg Falls, Richford Village, St. Albans, and in some cases Burlington, for shopping and professional services.

C) INCOME AND WAGES

Between 2000 and 2007, the median adjusted gross income (AGI) of Berkshire residents showed a 34% increase, from $24,462 to $32,732. The average annual increase during this time was approximately 4%. This is a significant increase when compared with the Franklin County average. While the median AGI in Berkshire was still less than the Franklin County average in 2007, it is now closer to the County average than it was in 2000 and was about equal with it in 2004 and 2005 (Figure 5.1).

Median adjusted gross income is an average based on individual tax returns and is therefore lower than household income reported by the U.S. Census (which may include more than one tax return). The 2000 U.S. Census reported the median household income in Berkshire to be $37,059, which was lower than the median for the County and the State ($41,659 and $40,856 respectively).

Figure 5.1



In 2008, according to the Vermont Department of Labor, the average annual wage in Berkshire was $27,293 as compared with $38,326 statewide. Average annual wage is defined as the yearly average of all wages for all industries within a given geographic area. It is computed from total wages and average employment (total annual wages/annual average employment).

The 2000 Census indicates that in 1999, 13.6% of Berkshire's residents were living below the poverty level, compared with 9.0% for Franklin County and 9.4% for the entire State. Franklin County and the State have decreased their poverty rates between 1990 and 2000, while Berkshire's poverty rate increased from 11.4% to 13.6%. Recent median adjusted gross income figures indicate that Berkshire's income has grown to be closer to that of the County and that of the State. It will be interesting to see whether the poverty rate collected for the 2010 U.S. Census figures follows this trend as would be expected.

D) EDUCATION AND TRAINING

Many factors influence the attractiveness of a community to an employer looking to relocate, including education levels. It is important for a community to promote good access to education and training that lead to higher paying jobs. Locally, post secondary and continuing educational programs are available through the Community College of Vermont (CCV) in St Albans, Johnson State College in Johnson, and several colleges and universities in the Burlington area, including the University of Vermont. Vocational training is available through area high schools and the Enosburg Falls Vocational center. Other vocational training opportunities are provided through such publicly sponsored programs as Vermont Job Start and through private on-the-job training programs.

The 2000 Census indicated that of the population 25 years and older, just over 80% of Berkshire's residents held at least a high school diploma. This is almost equal to the County figure and 4% less than that for the State. Berkshire improved its high school completion rate by 15% from 1990 to 2000. The percentage of Berkshire residents with at least a four-year college degree was 13%, while Franklin County was 17%, and the State was 29%.

E) FUTURE ECONOMIC DEVELOPMENT

Continued economic health for the Town of Berkshire lies in the maintenance of a viable agricultural industry, principally dairying, supplemented by other forms of agricultural activity and the provision of goods and services that support an agrarian economy. The Town should encourage any efforts that support its agricultural base, including the protection of primary agricultural soils and farmers' rights to farm; support of tax abatement programs, such as the Use Value Appraisal Program; and the possible diversification of agriculture, including the support of value-added enterprises.

At the same time, Berkshire residents are aware that agricultural employment has been in steady decline, and more people must commute elsewhere to work. Small commercial enterprises and light industry in appropriate locations would complement the agrarian economy if they were in keeping with the rural character of the Town and had no impact on the local environment.

The Town should encourage the development of home occupations, and small businesses in or near the existing Village centers. The Town recognizes that a particularly effective means to accomplish these goals, while at the same time addressing residents' expressed educational and environmental interests, would be to bring high-speed (broadband) internet connectivity to residents and

businesses in the Town. Broadband internet connections would encourage and enable small and home-based businesses, and enhance existing businesses in ways that current dial-up and even satellite connections cannot. To this end, the Town should move proactively to become involved with the various organizations working to bring internet connections to rural areas. This includes supporting and closely monitoring the North-Link fiber optic project and the Vermont Broadband Council.

Tourists, attracted by the beauty of Berkshire's agricultural landscape, may also play a greater role in the Town's economic future. Related development such as inns, bed and breakfasts, farmers markets, craft shops, or eateries could add to the local economic base.

Berkshire at this time does not have the municipal services to support larger commercial enterprises and industry. It is anticipated that this type of development will be located in the nearby service areas of Richford and Enosburg Falls. For example, Richford has developed a small industrial park on Route 105 not far from the Berkshire town line that may provide employment opportunities for local residents.

GOALS AND POLICIES: EARNING A LIVING

GOAL: Promote a balanced, diverse economic base, with a focus on locally owned enterprises.

Policies:

1) To encourage that agricultural and forest land be maintained for viable economic use, encourage value added business, promote locally grown products, and encourage the implementation of agricultural/forestry best management practices.

2) Diversification of the economic base, including the development of compatible businesses and light industry, and the promotion of home occupations should be encouraged.

3) Economic development should be pursued to provide maximum economic benefit with minimal environmental impact.

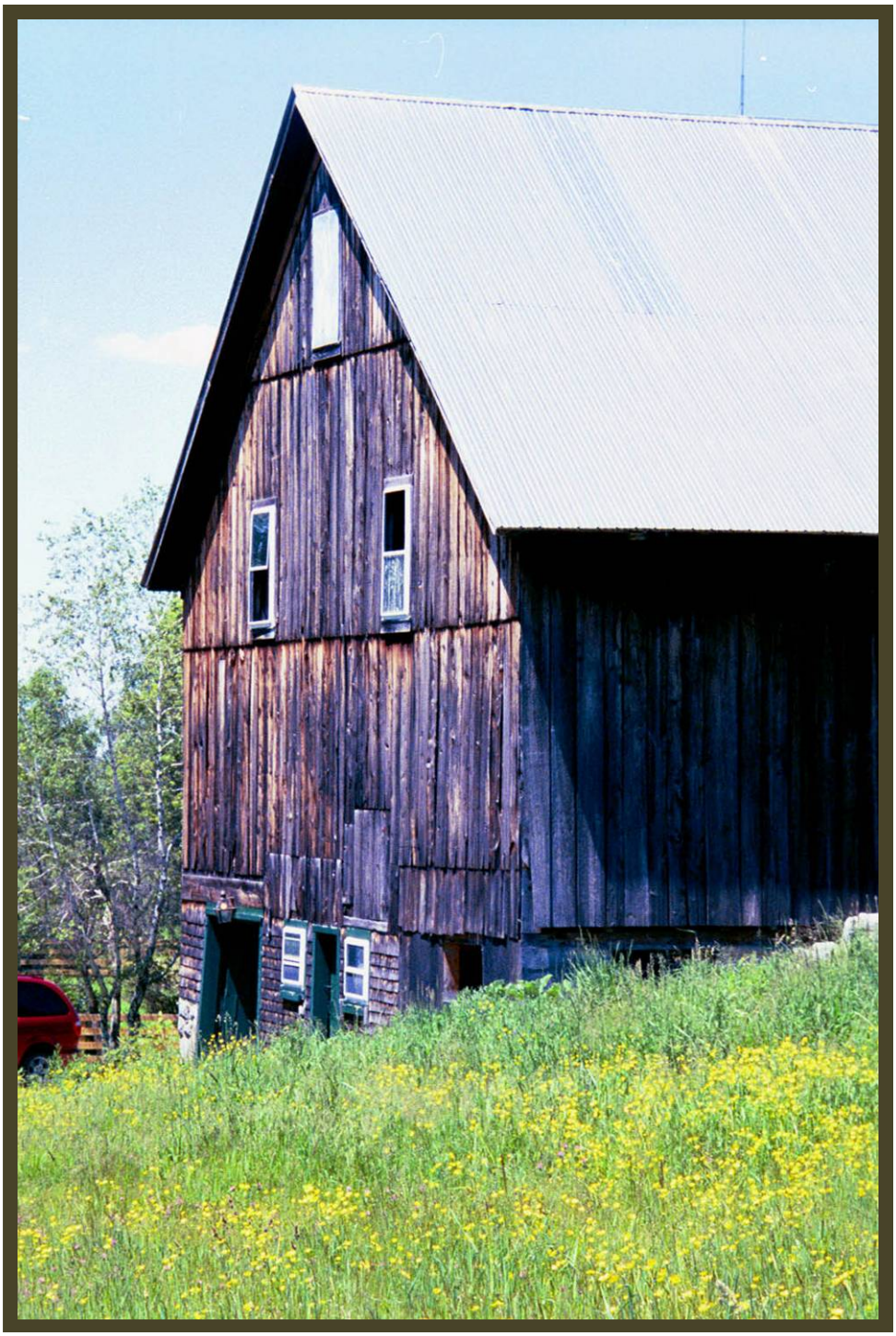


Photo by Jere Levin

PROVIDING FOR THE PEOPLE

A) MUNICIPAL GOVERNMENT

Berkshire Town Hall Before Renovations

Photo by NRPC

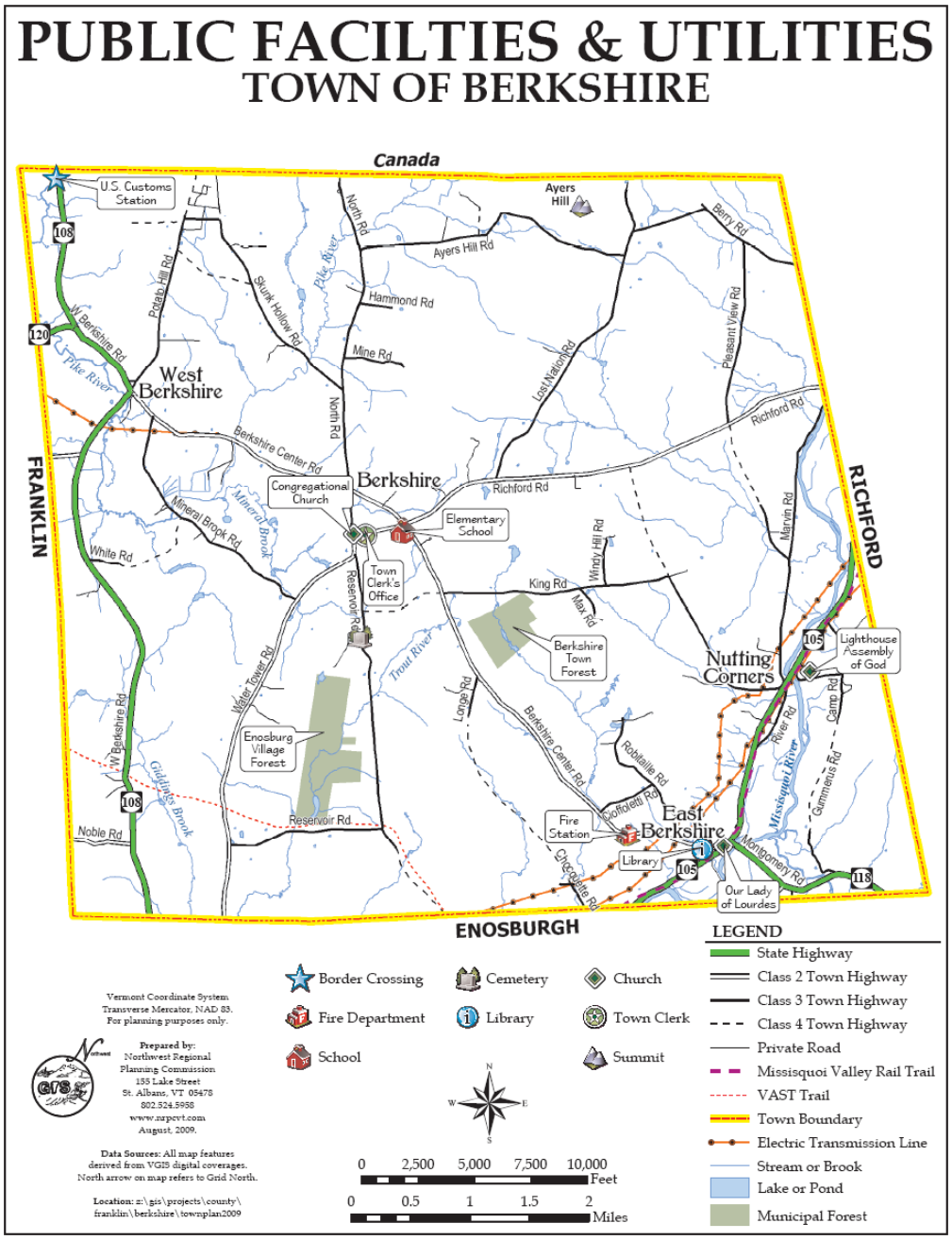
The Berkshire Town Hall, built in 1899, is an important local landmark located in Berkshire Center. The Town Hall houses all municipal administrative and treasury services as well as being used for Selectboard meetings. Berkshire employs a clerk, an assistant, auditors and listers to take care of the daily administrative needs of the Town and maintain records. Until 2007, the Town Hall was not used for municipal offices. It's use was limited because the building's only heating source was a wood stove, it had no water service or fire protection systems, and was not ADA compliant. The town built a small office next to the Town Hall to serve as the municipal offices during this time; however, the Town quickly grew out of this space. In response, during 2005 and 2006, the Town Hall was restored with the use of funds from the Vermont Historic Preservation Program, the Vermont Community Development Program and a municipal bond. In 2007, the Town moved municipal offices back into the restored Town Hall and tore down the small office building. Space and facilities at the Town Hall are now more than adequate to serve the town for many years to come.

B) LIBRARY

The library is located in the village of East Berkshire in a Victorian house known as the McKeown House, which is located next to Our Lady of Lourdes Catholic Church on Route 105. Heather KcKeown, the owner, is also the Librarian. Patrons can call in advance if they would like to browse or take out a book. The collection contains over 4,000 volumes, both fiction and nonfiction, for adults and children. New books are purchased by the librarian or donated by residents in the town.

The library opened in September 1989 and is officially recognized by the state although it has no paid staff, board of directors, or set hours of operation. The work of readying the space for the initial, large donation of books was accomplished by many volunteers, led by Heather, who also organized fundraising events to raise money for the shelving, books, and other materials.

The Berkshire Selectboard gave $1,250.00 in town monies towards the original purchase of books.



Map 6.1

C) EDUCATION

The School System

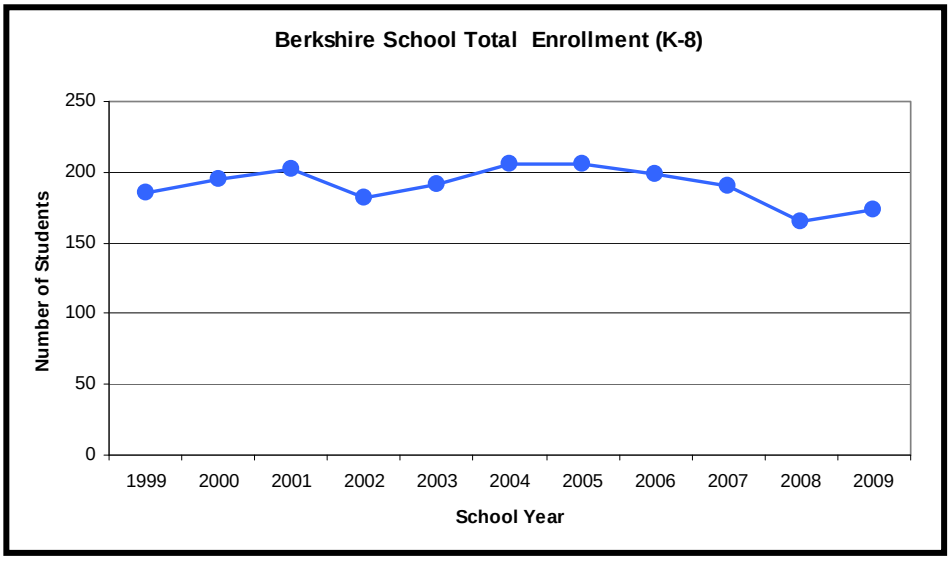
The people of Berkshire have long enjoyed an effective school system. Students from Berkshire have historically performed well in high school, both in academics and in extra-curricular activities, and have gone on to be successful in their post-academic lives. Numerous reasons for such achievements include community support, teaching and staff quality, the intimacy of the school, and a sense of shared responsibility. In addition, there is commitment to set high goals and expectations among school personnel, parents, and community members.

Town residents consider the Berkshire Elementary School one of the community's most valuable assets. Built in 1969, the elementary school is 17,782 square feet in size, includes ten classrooms, and currently houses grades K-8. The school can accommodate approximately 209 students. School bus service is contracted. In the 2009-2010 school year, there were 36 faculty and staff members. Berkshire secondary students are presently enrolled as tuition students primarily in the Richford and Enosburg Falls High Schools.

Enrollment Trends and School Capacity

As shown in Figure 6.1, enrollment at the Berkshire School has changed very little over the last 10 years. Enrollment during the 2009 school year was just 10 students less than in 1999. During approximately the same period (2000 to 2008), population is estimated to have increased by 208 people. This indicates that the population is aging and/or that families are having fewer children, as noted in Section II. While the population is expected to increase over the next 20 to 30 years, the enrollment trends of the past 10 years indicate that school enrollment will not experience proportional growth.

Figure 6.1



Space at the elementary school is in short supply. 2009 enrollment is close to the school's capacity, within

40 students of their capacity. In 2004 and 2005, the school reached capacity. Much of the library has been used for classroom space and special education classes recently were moved out of the elementary school building to make more classroom space available. Looking to the future, even without any significant increases in school enrollment, Berkshire has some very hard decisions to make with regard to capacity, needed school facilities (science laboratories and equipment, computer stations, facilities for home economics, industrial arts, art, and music), and the curriculum that can be offered.

Berkshire residents continue to express their desire to maintain local control over the education of their children, and have indicated that they will consider building an addition to the existing school. A bond was proposed in 2006 to add 12,572 ft. to the existing building. The School Board considered alternative options to the addition which included tuitioning out 7th and 8th grade students or rearranging classes in the existing space to accommodate more students and improve facilities without any construction. It was determined that the most practical solution to address the problem of crowding in the school while maintaining a high level of education in Berkshire was to propose the renovation.

The addition proposed by the bond would have expanded classroom, library and gymnasium facilities in addition to adding more office space and parking. The bond was not passed in 2006 and there has been no further discussions about the Berkshire School Expansion since then.

Meanwhile, improvements have been made in the current school such as providing computers and updating technology. There are now computers in every classroom. A T-1 line was installed into the school, providing consistent, high-speed access to the internet for all computers. The purchase of updated equipment and training in its use has been supported by local and federal funding.

Childcare

Childcare can be a growing concern for existing and prospective families, including finding quality care and paying for its cost. High quality, available childcare is a critical component supporting a stable workforce.

According to a recent survey, Berkshire has three registered childcare centers/homes, currently serving 22 children. The 2000 U.S. Census indicates that there are 263 children from birth to age 12 living in Berkshire, exceeding local childcare capacity by a large margin. However, it is known that families use many of the services located in the neighboring communities of Enosburg Falls and Richford, and childcare is most definitely not an exception to this trend.

Enosburg Falls has a total childcare capacity of 121 children and Richford has a total capacity 122 children. The 2000 U.S. Census indicates that there are 562 children from birth to age 12 living in Enosburg and Enosburg Falls combined and 445 children of that age living in Richford. If we combine the childcare capacities in Berkshire, Enosburg Town, Enosburg Falls, and Richford, 1,008 children's childcare needs are potentially not being met by local childcare facilities. Data on other options, such as siblings, stay at home parents, family care providers, un-registered childcare homes or other opportunities, are not available. Therefore, there is currently no indication of how the needs of the 1,008 children are being met.

D) WATER SUPPLY

Most Berkshire residents and businesses get their water supply from on-site wells and springs. The community of East Berkshire is served by a cooperatively owned system, the East Berkshire Water Coop, which provides water to a population of approximately 150, including 10 small businesses.

The source of supply for this system is a series of springs located in the Town of Enosburg that, through a common collection pipe, feed a concrete reservoir situated on a knoll southeast of the community at an elevation of 560 feet. The storage reservoir, constructed in 1971, consists of a covered concrete basin with a storage capacity of 75,000 to 80,000 gallons. From the reservoir, approximately one mile of four inch and smaller cast iron and plastic water mains service the community through 65 connections. The average water pressure in the lines is approximately 45 pounds per square inch in the lower section of the community. Daily demand averages around 10,000 gallons per day; maximum daily demand rarely exceeds 20,000 gallons per day. Water use is not metered.

The water quality of the system is reportedly good at present. The water supply is treated with disinfectant, and the reservoir and springs are covered to reduce contamination. The Coop purchased 50 acres of land around the springs to further protect the quality of their supply, which is incorporated into the Source Protection Area for the public water supply (See Water Resources section). The Town of Enosburg has agreed to a buffer zone around the Spring to also protect the water quality.

This system is meeting the demand at present; however, there are no plans to expand the distribution system in the near future. Most growth within the Town will have to be accommodated through on-site systems.

According to state ground water potential maps, the best areas in Berkshire for

high yielding wells are the gravel deposits associated with the recharge area between West Berkshire and Enosburg Falls. Good ground water potential for a public water supply exits underneath the community of West Berkshire, and just west of Berkshire Center. Many local residents already draw from these areas. There is no ready need to develop these ground water areas for a public water system (a system that serves 10 or more users), but the Town should consider ground water protection measures to meet existing and future needs.

E) WASTE WATER TREATMENT

Residents are served by private on-site sewage systems. There is no municipal sewage system in the town and no plan to develop one in the near future. Problems with failing septic systems and leach fields have been noted in East Berkshire on the west side of the Missisquoi River where in the past, poor soil conditions and closely spaced buildings have resulted in direct discharge from some individual systems into the river. In the late 1960's, it was recommended by a private consultant (Dubois & King) that the town consider installing approximately 4,600 feet of gravity sewer and a 10,000 gallon septic tank and leach field in East Berkshire, to be located just to the south of the community. The Town; however, did not pursue this option due to the then high costs of the proposed facilities. It may be time to reconsider installing a community sewer system in East Berkshire in order to permit a limited amount of growth, including higher density, clustered residential, and commercial development near the existing population center.

The Town does recognize the need to ensure that septic systems are properly designed and installed to avoid septic system failure and water supply contamination. Individuals wanting to install a septic system, to work on their leach field, or to drill a well need to receive a Wastewater and Potable Water Supply Permit from the Vermont Department of Environmental Conservation (DEC). After July 1, 2007 new rules took effect which delegated the authority of permitting private on-site water supply and wastewater systems entirely to the State of Vermont rather than municipalities, unless a municipality applies for and is granted delegation. Berkshire has not sought delegation and therefore does not have authority to review or permit wastewater systems as was done prior to 2007. Any complaint or discovery of a failing septic system may be referred to the ANR by the local Health Officer.

F) SOLID WASTE DISPOSAL

Berkshire has been an active member of the Northwest Vermont Solid Waste Management District since its formation in January of 1988. The District has adopted a comprehensive Solid Waste Management Plan, which is in

compliance with the State Solid Waste Management Plan, and which has been approved by ANR. The provisions of the District Plan, insofar as it is applicable to the Town of Berkshire, shall be considered the management plan component of the Town Plan.

The largest source of funding is a surcharge to disposal companies for waste generated in district communities. This surcharge, currently $22.00 per ton of waste, accounts for the majority of the District revenue. A small portion of the revenue comes from the Solid Waste Implementation grant from the state which is approximately $25,000 a year. The third source of revenue is a direct per capita assessment to member communities. This assessment has been set at $1.00 per capita since 1994, and it is expected that it will remain at this nominal figure for the foreseeable future.

The District is one of only two districts in the state to have sited, received state certification for, and purchased the property for a regional lined landfill to serve the needs of member communities in the future. This site, located in the Town of Sheldon, is being held by the Board of Supervisors as insurance for District communities against the inevitable depletion of landfill capacity at current disposal sites, and the possible increase in the cost of disposal that may accompany diminishing capacity.

A Supervisor, appointed by the town's legislative Body, represents each member town on the District Board. Currently, and for several years now, Berkshire has not had a member appointed by the Selectboard. Having a representative from Berkshire as part of future District activities would be an asset for our Town and should be considered.

Town residents are still concerned about the number of unregulated and inadequately located and maintained junkyards that have appeared around the Town in recent years. In response to this concern, the Planning Commission worked with the Selectboard to draft and adopt a Junkyard Ordinance. Municipal board's are hopeful that the ordinance with allow the town to successfully enforce junkyard violations and eventually deter new accumulation of junk within the Town.

G) EMERGENCY AND MEDICAL SERVICE

The Town of Berkshire maintains a volunteer fire department based north of East Berkshire. A three-bay station, built with federal revenue sharing funds, was completed in 1974. Present equipment includes a 1997 Freightliner pumper with a 750-gallon booster tank and a 1000 gpm pump, a 2001 tank truck with 2200-gallon capacity a portable generator, and three portable pumps. The 2001 tank truck was converted from a milk truck that the McDermott family generously donated to the town. This tanker replaced an old truck. A dry

hydrant is installed at Lussier's pond on Water Tower Road for pumping when needed. All dispatching is conducted out of St. Albans.

The Fire Department, made up about 20 volunteer members, answers an average of 30 calls per year, and participates in mutual aid agreements with neighboring communities. There is a constant need for more volunteers but currently there are more than there have been in the past. The Fire Department can usually meet the demand for service in town. However, more extensive services and equipment are available from Enosburg and Richford, if needed.

Law enforcement protection is provided by the State Police, barracked in St. Albans. In the past, the Franklin County Sheriff's department also provided protection, but this practice is no longer in effect. The Sheriff's department is no longer willing to contract with a single town, but rather wants to contract with an area consisting of several towns. Berkshire has considered participating in a program with Richford, Enosburg, and Montgomery to establish a cooperative fund in order to hire a law enforcement officer. The new program would cost $90,000, which the Town decided was too high. It should be noted, however, that although no official contract exists with the Franklin County Sheriff's department, they will respond to a 911 call if they are in the area.

The Community Health Center in Enosburg Falls and the Richford Health Center provide care by general practitioners and pediatricians, as well as many other health-care services. Both Towns contribute funds to support ambulance services, which provide transportation to the nearest hospital, the Northwest Medical Center in St. Albans, 25 miles away. Other physicians, dentists, and optometrists maintain private practices in one of the two towns. Healthcare facilities are also considered adequate for the near future.

H) RECREATION

Community recreation facilities in Berkshire include the playground and playing fields at the Berkshire Elementary School in Berkshire Center. The original facilities, funded through revenue sharing, were constructed in 1982, at a cost of $18,000 to the Town. During the late 1990s, the Recreation Committee, headed by Bea Lussier, held regular fundraisers to add new equipment.

Currently the facilities consist of a soccer field (added in 1989), a basketball court, a baseball field with dugouts, a backstop, bleachers, and a little league outfield fence, a play structure for climbing and sliding (added in 1996), a sand volleyball court, free standing swings, slides, and spring-based "animals", a climbing dome, a gazebo, a concession stand/storage building, and an equipment shed. The facilities are open to the public with scheduled activities,

primarily on the ball field, continuing through the summer. The school also provides use of its gymnasium to a community group for regular volleyball games during the school year.

Recreation Committee

The Berkshire Recreation Committee has been very active in the years leading up to 2010. The Committee is a volunteer group of Berkshire citizens who work to improve recreational programs and facilities for the Berkshire community.

Little League Game Photo by Loren Doe

Some of the current committee activities include: maintaining and improving the playground, managing spring youth baseball and softball programs, a fall youth soccer program involving 3rd and 4th graders, summer youth soccer camp for all ages, winter youth basketball program for 3rd and 4th graders, a discounted bowling program for all citizens of Berkshire, and an annual clean up/fix up day for all youth and parents.

Little League Team Photo by Loren Doe

During the past 5 years the Recreation Committee has been very successful in fund raising. The citizens of Berkshire have also approved two appropriations from the General fund in the amount of $2,000 each during FY2008 and 2009. Funds raised and appropriated have been used to make many improvements to the playground and ball fields located near the school:

The work of the Recreation Committee continues to be completed, in large part, by a committed group of volunteer parents and citizens who value access to wholesome activities for skill building, physical fitness and just for fun. Many people, both committee members and others willing to help, have given freely

of their time to help with these projects. Others have made significant monetary donations. The Recreation Committee plans to continue their work into the future as a not-for-profit corporation.

Trails and Other Recreation Opportunities

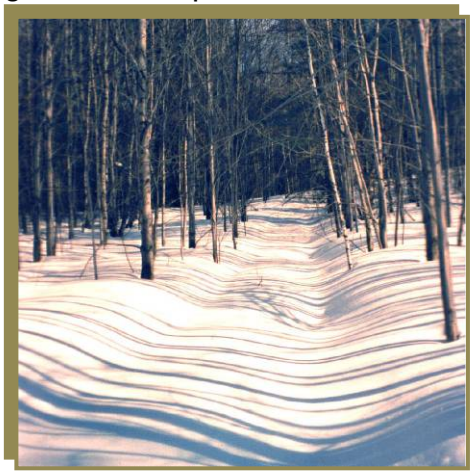
Besides a cross-country ski trail system in the woods on school property, Berkshire residents have easy access to the Mississquoi Valley Rail Trail, an all season recreational path along the former railroad right-of-way. The trail, which passes through East Berkshire north of the intersection of Routes 118 and 105, begins in St. Albans and links up with Canadian bike paths at the border in Richford. The Town also owns a 100-acre parcel of forested land, the Berkshire Town Forest, which could be developed for recreational and educational use. Town residents voted in late 2004 to retain this land in municipal ownership.

The Missisquoi Bearcat Snowmobile Club includes both the towns of Richford and Berkshire. In 2009, the club was responsible for maintaining 54.5 miles of trails that run through Berkshire and Richford. The three trails that occur in the Town of Berkshire are known as: VAST Rte 139, VAST Rte 7, and VAST Rte 7A.

VAST Rte 139 begins in Richford at a trail junction located on Hurtubise Island in the center of Richford Village. The trail runs north to the Canadian border and crosses Berry Road, Mine Road, Hammond Road, Vt. Rte 118 in Berkshire Center, Water Tower Road, Reservoir Road, the Old Stagecoach Road, and joins VAST Rte 7A behind the Stanhope Farm on Water Tower Road. The Mississquoi Valley Rail Trail is is also known as VAST 7.

Funding for the building and maintenance of trails is provided by the Vermont Association of Snow Travelers (VAST) through local clubs. VAST is the statewide organization to which all of the local clubs belong.The Missisquoi Bearcat club maintains the section of VAST Rte 7 that travels through Richford and Berkshire. VAST Rte 7A in Berkshire runs roughly from North Sheldon to the Rail Trail behind the Dairy Center.

With the exception of the Mississquoi Valley Rail Trail, the VAST trails in the Berkshire area exist thanks to the local landowners who grant permission to build trails and travel over the land only during snowmobile season. The snowmobile season runs from the third Monday in December to the middle of April each year. Each individual landowner agrees separately with the snowmobile club to build and maintain trails.



Birch Stand
Photo by Jere Levin

The trails are then considered part of the Statewide Snowmobile Trail System (SSTS).

The Northern Forest Canoe Trail (NFCT) also provides a unique recreational opportunity in the region. The Trail connects lakes, rivers and streams from Canada into New England and New York State. The NFCT brings a variety of paddlers into the region. Supporting the recreation and tourism industries along the route is part of the mission of the NFCT.

Although, traditionally much of the privately owned land in Berkshire has been open to local residents for hunting and fishing, the last decade has seen an increase in the posting of private land not only in Berkshire, but also state-wide. New development should be designed to ensure continued public access to outdoor recreational opportunities in the Town.

Other organized recreational facilities, including golf courses, tennis courts, cross-country touring centers, and alpine ski resorts, are located in neighboring towns, and it is likely that more of these facilities will be developed in the future. Private facilities provide recreational opportunities for those who can afford it; they also serve to attract tourists and seasonal or second home development. The Town of Berkshire supports maintaining and enhancing recreational opportunities for Vermont residents and visitors.

I) TRANSPORTATION

Introduction

Berkshire residents, as most residents of rural towns, depend greatly on privately owned motor vehicles and the local road network to get around. Berkshire has a total of 63.7 miles of traveled roads within the Town, including 12.6 miles of state highway, and 51.1 miles of Town highway (Class II and Class III) (Table 6.1). There are also 9.4 miles of Class IV roads, including pent roads, within the Town.

State highways serve as connector routes to other towns and carry through traffic as well as local traffic. These highways are numbered, repaired, and maintained by the state. There are no Class I roads, which form extensions of state highway routes, in Berkshire. The Town receives state aid to assist in the maintenance of Class II and III roads, which must be negotiated on an annual basis. Class II roads are the most important town roads, and are intended to carry heavier traffic loads in and between towns. Class III roads serve more limited commuter traffic. All other roads in the Town are designated as Class IV roads, and are not required to be maintained year-round, as decided by the Selectboard.

Condition of Roads and Bridges

Despite the condition of state highways, no road improvement projects have been scheduled in Berkshire through 2009; however, this is due to their relatively low priority statewide and the lack of necessary funding. On the other hand, improvements to structurally deficient bridges have been made or are in the works. In 2006, Bridge No. 26 which crosses the Trout River on Rt. 118, was replaced because it was considered structurally deficient. In addition, repairs to the bridge that crosses the Missisquoi River in East Berkshire is a regional priority.

Table 6.1. Mileage Summary

Town Highways:	
Class I	0.00
Class II	15.65
Class III	35.43
Class IV	9.35
Trails	~7.44
Total	67.87
State Highways:	
Route 105	3.70
Route 108	6.91
Route 118	1.61
Route 120	0.39
Total	12.61
Total Traveled Mileage (less Class IV & trails):	63.69
Total Road Mileage:	80.48

Source: Vermont Agency of Transportation, 2009

There is concern over the increase in the amount of traffic on local roads in recent years, particularly with regard to heavy truck traffic near East Berkshire and weekend traffic on Richford Road and Berkshire Center Road (Town Highways 3 and 5), which serve through traffic between Canada and the Jay Peak ski area. Berkshire has made some major improvements in its road network, including the paving of Water Tower Road (Town Highway No. 4), formerly a Class II gravel road. Road surface conditions are generally good, however some of the paved roads in Town are considered too narrow to safely carry both vehicular and bike traffic, which has also increased in the past few years. Speeding and the lack of directional and stop signs at major intersections also have been identified as problems.

Average daily traffic count (AADT) on West Berkshire Road (from the Enosburg town line to the intersection with Berkshire Center Road) was 860. Richford Road had an AADT of 870 and Berkshire Center Road (from the intersection with VT105 to the intersection with Richford Road) has an AADT of 660 (Table 6.3) The traffic

Table 6.3
Average Daily Traffic Counts

	2004	2007
West Berkshire Road	920	860
Berkshire Center Road	800	660
Richford Road	540	870

numbers decreased on West Berkshire Road and Berkshire Center Road since 2003, but increased significantly on Richford Road.

Data Source: VTRANS Planning Division 2007

The town will continue to apply for federal and state highway grants to upgrade town highways and bridges as needed. Recent improvements on town roads include the replacement of several culverts, some with cement inlay. Regular maintenance continues to remain a priority.

Class 4 Roads

The Town of Berkshire, like many other towns, has a number of Class IV roads that are very infrequently traveled. In most instances, these roads served past economic industries that are no longer active, As a result, the roads have deteriorated or been blocked off. Unless officially discontinued, the Town still maintains the rights-of way and responsibilities of maintenance. Consideration should be given, therefore, to taking steps to declare portions of unused highways as legal trails, pursuant to 19 V.S.A. 535. As such, the Town retains ownership of the rights-of-way, but has no maintenance responsibilities. Reversion of Class IV roads to legal trails would not preclude their being used for land access; and, as legally designated trails, they might provide much needed rights-of-way for public recreational use. As of 2009, these improvements and reclassifications are not being actively considered however may become more of a priority again in the future.

What Lies Ahead?

Recommendations for the future include updating road policies concerning maintenance (particularly of Class IV and development roads), construction standards for new roads (and sidewalks, if appropriate), and road reclassification. The Town should maintain a road improvement program (to be included within a capital budget for the Town) so that the Town will be eligible for funds, available on a competitive basis, from the Town Highway Aid Program. Technical assistance in these areas is available from the Agency of Transportation's Planning Division and the Vermont Local Roads Program.

Traffic patterns and road conditions may be influenced by changes in agricultural operations and types of industry in the Town. They should be a consideration in land use regulations as well as in future budget planning.

As noted earlier, because of the increases in the speed and volume of traffic through the town, Berkshire may find it necessary to provide full-time police service, possibly through a shared arrangement with neighboring towns in the county or state. Presently, these options are not being discussed but should be reconsidered in the future as the economy recovers from the recession.

Rail Service

The railroads, once so important to the Berkshire community, have all but vanished from the Town. No state rail improvements are scheduled.

Presently the nearest rail service for freight is in Richford (Canadian Pacific) and St. Albans (New England Central). Amtrak passenger service is also available from St. Albans.

Air and Bus Service

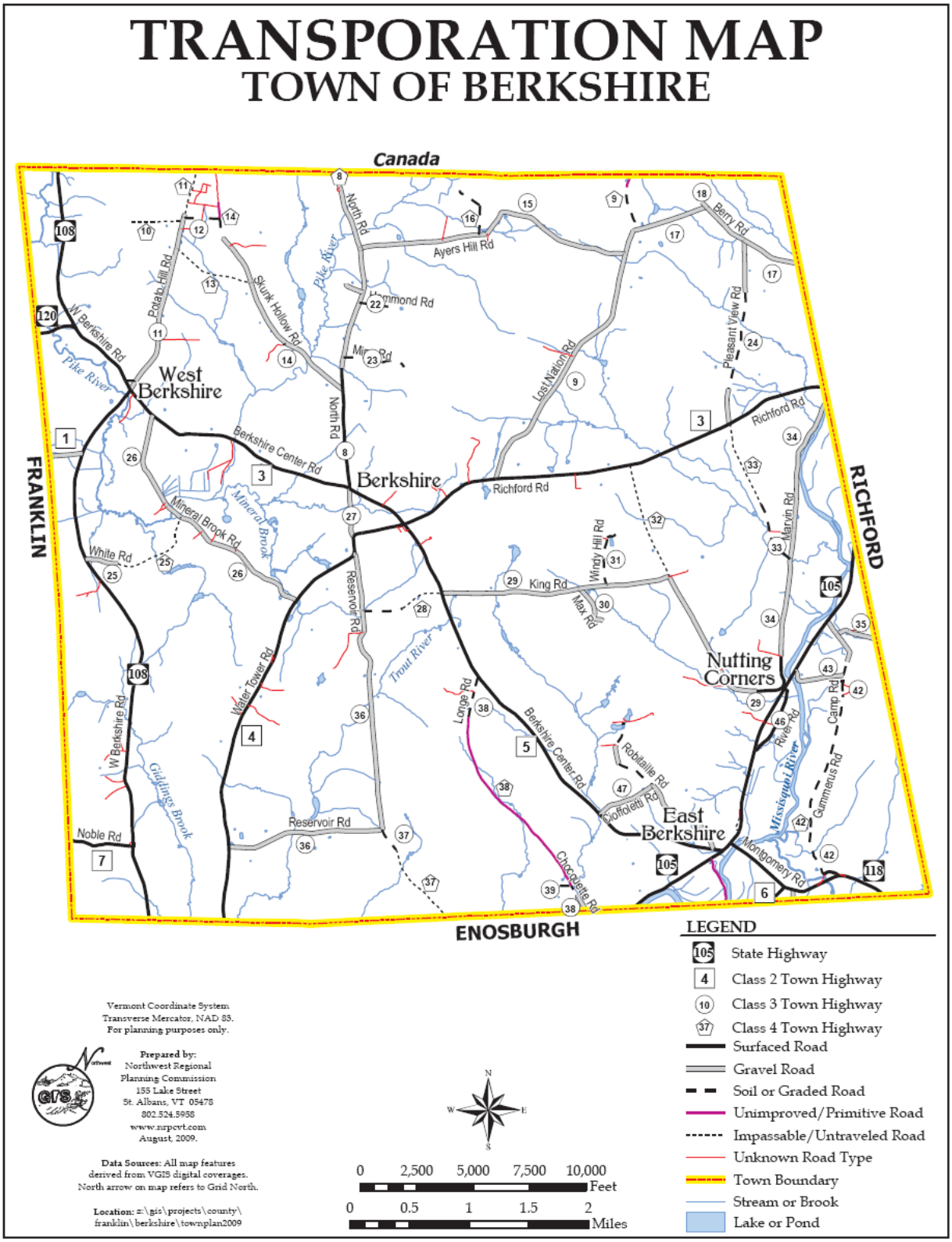
Berkshire has no air service within the Town. The Franklin County Airport in Highgate supplies local air service. Larger interstate and international flights are available at the Burlington Airport, and at Mirabel and Trudeau airports in Montreal, Quebec.

Passenger bus service is available on Vermont Transit Lines from St. Albans. Green Mountain Transportation Authority (GMTA) has developed a transit network (vans, mini-buses) for residents of Franklin County on a shuttle service between St. Albans and Richford. Rides can be coordinated by calling GMTA. In addition, the service currently coordinates ride-share, Medicaid, and elderly transportation services.

Pedestrian and Recreation Paths

Sidewalks in East and West Berkshire were torn up and not replaced when streets were widened and blacktopped. As a result, pedestrian traffic within these population centers has been redirected onto the roads. Roads in town also are being used increasingly by bicyclists and ATV users. Pedestrian and recreational use of local roads is becoming more and more of a safety hazard to motorists and others alike, given poor road conditions, greater motor vehicle traffic, and the tendency of drivers to exceed the speed limit on village and back roads. Biking, cross-country skiing, snowmobiling, hiking, horseback riding, etc. are available on the rail trail (Missisquoi Valley Rail Trail).

Reinstallation of sidewalks in Berkshire's hamlets should be considered. Moreover, the Town should consider providing designated areas (e.g., legal trails) for recreational use. Again, local police enforcement of traffic laws should be considered in order to more safely accommodate the multiple uses of Town roads.


TRANSPORATION MAP
TOWN OF BERKSHIRE
Canada
FRANKLIN
RICHFORD
ENOSBURGH
West Berkshire
Berkshire
Nutting Corners
East Berkshire
Pike River
Mineral Brook
Trout River
Missisquoi River
Giddings Brook
Ayers Hill Rd
North Rd
Potash Hill Rd
Skunk Hollow Rd
W Berkshire Rd
Berkshire Center Rd
Mineral Brook Rd
White Rd
Noble Rd
Reservoir Rd
Water Tower Rd
Lost Nation Rd
Pleasant View Rd
Berry Rd
Richford Rd
Marvin Rd
King Rd
Windy Hill Rd
Max Rd
Longe Rd
Robitaille Rd
Cioffoletti Rd
Chocolgate Rd
River Rd
Camp Rd
Gammerus Rd
Montgomery Rd
LEGEND
State Highway
Class 2 Town Highway
Class 3 Town Highway
Class 4 Town Highway
Surfaced Road
Gravel Road
Soil or Graded Road
Unimproved/Primitive Road
Impassable/Untraveled Road
Unknown Road Type
Town Boundary
Stream or Brook
Lake or Pond
Vermont Coordinate System
Transverse Mercator, NAD 83.
For planning purposes only.
Prepared by:
Northwest Regional Planning Commission
155 Lake Street
St. Albans, VT 05478
802.524.5958
www.nrpcvt.com
August, 2009.
Data Sources: All map features derived from VGIS digital coverages.
North arrow on map refers to Grid North.
Location: z:\gis\projects\county\franklin\berkshire\townplan2009
0 2,500 5,000 7,500 10,000 Feet
0 0.5 1 1.5 2 Miles

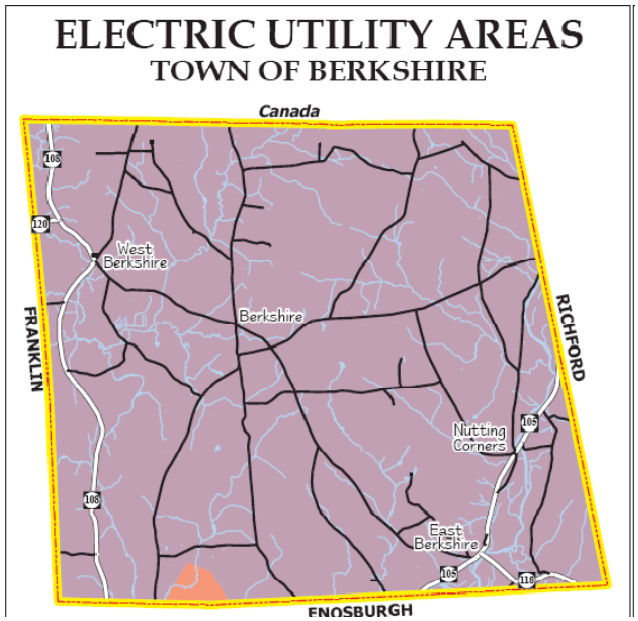
Map 6.2

J) ENERGY

Current Energy Use

Electricity

There are twenty-one electric utilities serving Vermont. Vermont Electric Co-op (VEC) and the Village of Enosburg Falls Electric Light Department (EFELD) serve Berkshire (Map 6.3). VEC is one of two coop utilities in the state. The Village of Enosburg Falls Electric Light Department serves a small area in the southwest part of town and the Vermont Electric Cooperative serves the rest of Town.



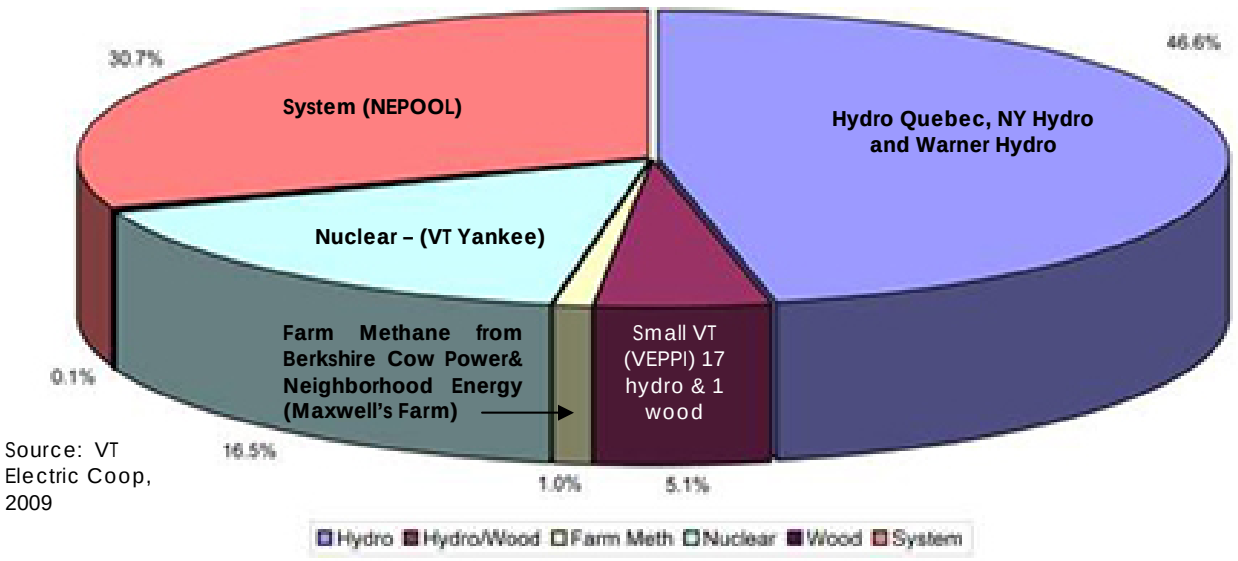
Map 6.3

The Vermont Electric Cooperative purchases power from a variety of sources (Figure 6.2), the majority of which derive power from hydroelectric dams. About half of VEC's power comes from large hydro, including Hydro Quebec, NY Hydro, and Warner Hydro. The next largest portion comes from the New England Power Pool (NEPOOL) followed by Vermont Yankee Nuclear Power Plant. Another 5% comes from 17 different small hydro electricity generators around the state. 1% of VEC's power comes from a renewable farm based methane recovery generation system located right in Berkshire.

High-voltage electricity produced and/or purchased by VEC and EFELD moves long-distances through transmission lines across the region. The Enosburg Falls Electric Light Department maintains single-phase distribution lines, but no transmission lines within Berkshire. The EFELD lines are adequate at present, and they have plans to eventually upgrade lines as necessary to serve an increased load. The poles are in good shape, and will not need to be replaced in the near future.

Figure 6.2

Vermont Electric Cooperative's 2009 Energy Portfolio



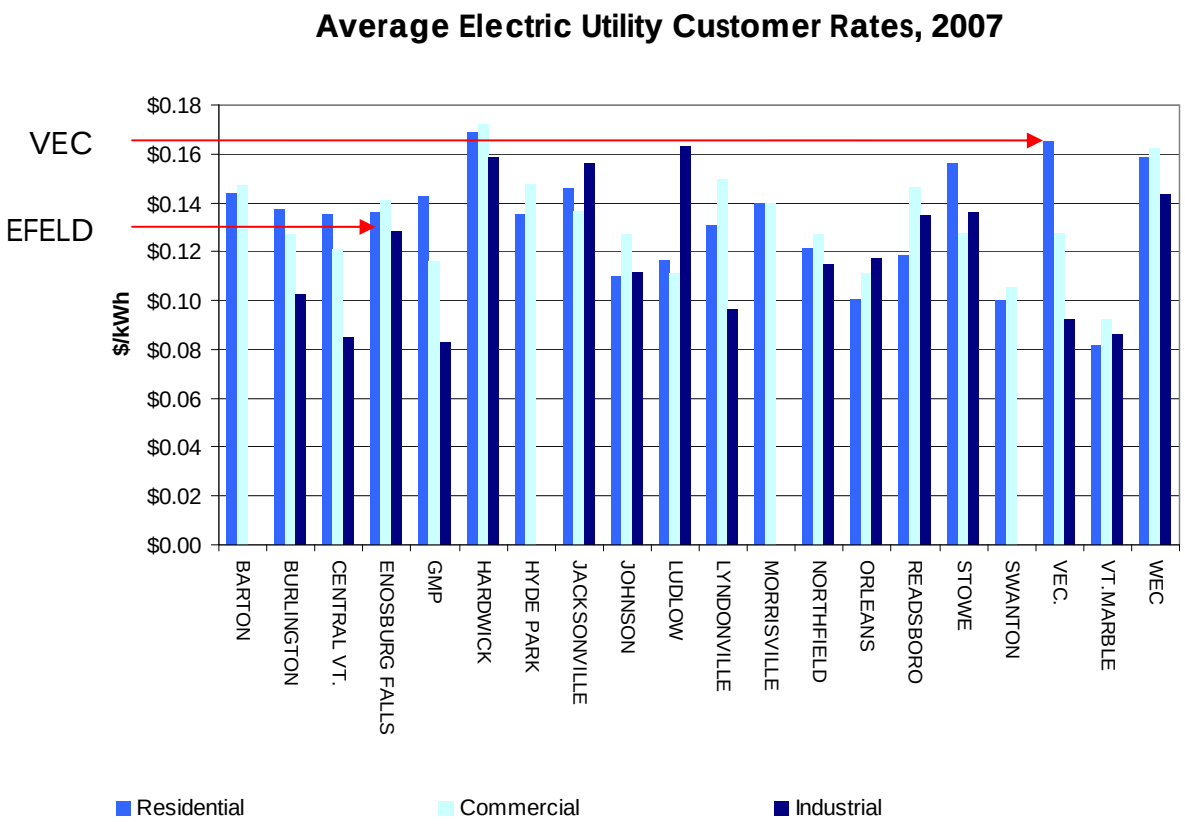
Source: VT Electric Coop, 2009

The VEC has about 670 members in the town of Berkshire. They maintain distribution and transmission lines and a substation in the Town. Substations reduce, or step down, the high-voltage electricity so it can be moved along the distribution system. The transmission and distribution lines are the smaller poles and wires on streets that connect to individual homes or businesses. The sub-station is located three-quarters of a mile north of East Berkshire on the west side of Route 105. Transmission lines (115 kv operating at 46 kv) roughly parallel Route 105 from Richford to Enosburg, through East Berkshire. VEC makes improvements to lines and substations as needed.

According to data collected by the Vermont Department of Public Service in 2007, the EFELD residential rates were much cheaper than VEC's rates. VEC's residential rates were second most expensive in the state at over 16 cents per kWh. EFELD rates were just below the average (14 cents per KWh) at 13.6 cents per kWh. Figure 6.3 shows average electric utility customer rates in 2007.

Overall, Vermont's electrical rates have generally stayed stable over time and have not experienced the same sharp increases seen elsewhere in New England. The price stability in Vermont is largely due to the fact that the two largest sources of power, Hydro Quebec and Vermont Yankee have been under long-term contract. However, Vermont Yankee's license will expire in 2012 and the contract with Hydro-Quebec will expire in 2012 and 2015. Thus, in the next 5 years Vermonters, including the residents of Berkshire, will face important decisions regarding sources and costs of electricity.

Figure 6.3



Heat

As shown in Table 6.4, fossil fuels are the primary source of home heating fuel in Berkshire by a wide margin. Fuel oil and kerosene heat nearly 70% of all occupied housing units in the Town, compared to 53% in Franklin County. This difference may be explained by the lack of utility gas available in Berkshire, which is used in 20.9% of all homes in the county. Despite the lack of available utility gas in town, the

Table 6.4. Home Heating Fuel Type

	Berkshire	Franklin County
Utility Gas	0%	21%
Bottled,Tank or LP	10%	14%
Electricity	0%	3%
Fuel Oil/Kerosene	68%	53%
Coal/Coke	0%	0%
Wood	21%	9%
Solar	0%	0%
Other Fuel	0%	0%
No Fuel Used	0%	0%

Source: U. S. Census, 2000

use of bottled or liquid propane gas accounts for 10.4% of all home heating in Berkshire.

Renewable Energy Opportunities

Locally generated power from renewable sources, such as solar, wind, biomass, and methane, can provide cost saving and environmental benefits for Vermont municipalities. The more power produced locally (on a household or community basis), the less dependent the State is on non-renewable and/or non-locally produced power. Several potential renewable sources of energy are locally feasible in Berkshire. Additionally State and Federal incentives make some of these sources more economically viable. These opportunities should continue to be considered.

Wood

According to the 2000 U.S. Census, 20% of all occupied housing units in Berkshire use wood as a primary source of heating fuel. With an abundance of woodlands in Berkshire and the surrounding region, use of wood as a primary home heating fuel has the potential to increase in the future. With careful management, local forests could provide a sustainable, local fuel source that promotes local economic activity at an affordable cost per BTU.

In addition to using wood-stoves as a heating source on an individual household basis, the clean combustion of wood chips and wood pellets for heat and electricity production is another method of producing energy from local, renewable timber resources. This method of electricity generation has been promoted by the Vermont Department of Public Service, including a program directed at heating schools. Virtually all of Vermont's chips come from mill wastes or wood harvested from sustainably managed forests

Biogas

There is great potential in Vermont for anaerobic digestion and methane recovery as an energy source from a variety of sources including manure, industrial waste, and solid waste. The number of methane digesters on farms is growing in Franklin County as dairy farmers are recognizing not only the energy potential, but environmental and economic benefits as well, including Berkshire's own Berkshire Cow Power. Currently, methane digesters are profitable for farms with 60 cows or more. The increased availability and continued development of technology in this type of energy production should make this a more feasible option for more and more farmers in Franklin County.

Wind

Given the topography of the town of Berkshire with a few elevated ridge lines, wind could be considered as a local renewable source for energy generation. Wind turbine technology and affordability continues to improve. Small-scale

wind turbines for residential, business, or farm applications typically range from 5 to 15 kilowatts and typically stand around 80 to 100 feet tall. To produce electricity on a larger scale, the installation of larger turbines is necessary, which can range in size from 150 feet to 400 feet (U.S. Department of Energy, 2009). Large wind installations might be owned by a utility or be privately developed to sell power to a utility, or to supply power to a commercial or industrial user.

Some people hold the belief the presence of wind turbines can detract from the aesthetic value of a place. This should be considered by decision makers and community members in Berkshire.

Solar

Solar power generation has been proven to be viable even in Vermont's northern climate. However, given the climate and latitude this type of renewable energy generation is best used in combination with other sources. Solar systems can range from simple sunspaces to advanced solar electric systems with photovoltaic cells or solar hot water systems. Every year, technological advances make the systems more efficient, dependable, and cost effective. Technological advances like the incorporation of photovoltaic components in roofing and siding materials may make solar power an even more viable source of electricity in the near future.

Aside from power or heat generation, there is the opportunity to harvest solar energy through proper siting, orientation, and design of structures. With passive solar construction techniques for space heating and natural lighting buildings can be more energy and cost effective.

Energy Efficiency and Conservation

Even with increased sources of renewable energy generation it is important to focus on reducing energy use and making the use of energy as efficient as possible. This will lead to the greatest to savings on energy costs. Additionally as less energy is demanded, a greater percent of the energy needs can be supplied by renewable and local sources. At the local level, concerns related to energy efficiency and conservation, generally fall into four categories: town-owned or town-maintained buildings, utilities, and vehicles; private energy use in residences and businesses; development patterns and the construction and siting of buildings; and energy used for transportation.

Municipal Energy

The Town can take several steps to ensure that efficient use of energy and the development and implementation of renewable energy resources are supported. Municipal energy savings can be realized through energy audits of municipal buildings and the use of "life cycle costing" practices that include long-term energy savings in the analysis of facility construction and purchase of

new equipment. Such costing methods may demonstrate that long-term energy savings outweigh the higher initial purchase or construction cost of energy efficient equipment and building improvements. The Selectboard is authorized by Vermont Statute to appoint an energy coordinator and/or an energy committee as an official resource to town planners. Since local information on the use of energy is limited, an energy coordinator or committee may be able to collect valuable data to further energy planning in town.

According to statute, an energy coordinator and/or committee would work towards the more efficient and economical utilization of existing and potential energy resources and with that in mind, could coordinate energy resources within the town, cooperate with the Planning Commission and with those federal, state, and regional agencies of government responsible for energy matters, and study and evaluate alternative sources of energy. The Planning Commission supports the creation of an energy coordinator and committee in Berkshire.

Homes and Businesses

While the Town has less direct control over private energy use, it is possible to encourage weatherization, the use of improved windows, the installation of insulation, and the use of renewable energy resources. Efficiency Vermont is the nation's first statewide provider of energy efficiency services and is available to provide technical assistance and financial incentives to Vermont households and businesses to help them reduce their energy costs with energy-efficient equipment and lighting as well as energy-efficient approaches to construction and renovation.

The farming community has been specifically targeted by utilities for assistance in increasing efficiencies and reducing electrical costs. VEC offers programs to help reduce energy demand through conservation. Statewide efforts aimed at agriculture include proposals to improve energy efficiencies in farm buildings and machinery. Alternative technologies which produce new sources of renewable energy are increasing in popularity, including digesters which capture methane for use as an energy source.

Development Pattern

The significance of land use related impacts on energy consumption and conservation are often underestimated. Dispersed settlement patterns put a greater strain on energy supplies by increasing transportation related energy consumption, and by reducing space efficiencies in the delivery of essential services. Reliance on automotive travel for work, school, shopping, and recreation also results in greater energy expenditures for both individuals and municipalities. By encouraging future development in concentrated areas, the town will achieve better efficiency in the delivery of existing essential services,

such as fire and rescue services, solid waste pick-up, and mail delivery.

The Town's current zoning bylaws encourage planned unit developments (PUDs), which require that buildings be clustered for more efficient uses of land and energy resources. PUDs facilitate the adequate and economic provision of streets and utilities and preserve the agricultural, forested, natural and scenic qualities of the Town. PUD's are widely used tools in land use planning because they can promote energy efficient siting and design. PUD's and other innovative techniques should be utilized wherever possible and appropriate.

Building Siting and Design

The way that buildings are sited and constructed can affect the amount of energy needed to access and use them. Development regulations can include incentives to site buildings with south facing orientation for maximum solar gain, use trees for wind breaks and shade, use appropriate glazing (windows) on the south wall, install "thermal mass" (such as concrete, brick, quarry tile, or water) to store the sun's energy, employ high levels of insulation, and use solar water heating,

Transportation

Transportation accounts for a significant amount of energy demand, which can be reduced through conservation efforts. Ridesharing and encouraging local and home businesses help reduce transportation related energy consumption, and promote economic vitality in accordance with state energy goals.

According to the latest U.S. Census (2000), over 65% of all Berkshire commuters drive alone to work, while 12% carpool. Given that the mean travel time to work is just under ½ hour, travel to work results in significant energy consumption by the Town. Alternatives to single occupancy work trips would greatly decrease energy demand and pollution resulting from the combustion of fossil fuels. Some alternatives include constructing park and ride lots to encourage carpooling, and seeking ways to develop the local and regional economy to decrease the necessity for long distance commuter trips.

GOALS AND POLICIES: PROVIDING FOR THE PEOPLE

GOAL 1: Make efficient use of public funds to maintain a sound fiscal balance.

GOAL 2: Ensure reasonable, functional and orderly development of all utilities, facilities, and services.

GOAL 3: Provide Town residents with the best possible educational childcare opportunities without overburdening the town's resources.

GOAL 4: Maintain and enhance recreational opportunities for Vermont residents and visitors.

GOAL 5: Provide and maintain a safe, convenient, and functional transportation network for vehicular, pedestrian, and recreational use within the Town.

GOAL 6: Conserve energy and encourage the use of renewable energy resources.

GOAL 7: Promote land settlement and economic development patterns that minimize energy demand.

Policies:

1) The rate of growth should not exceed the ability of the Town of Berkshire to provide facilities and services.

2) The development and provision of municipal facilities and services should be based upon a determination of existing need, a projection of reasonably expected population increase and economic growth, and upon the recognized limits of local finances and natural resources.

3) Public investments, including the construction and expansion of infrastructure, should be made to remedy existing problems, to promote timely and orderly land development, and to carry out the purposes of this plan.

4) Capital investments, including the development or extension of infrastructure, should not be made to decrease the resource value of, or increase the development pressure on important agricultural land. Tax incentive programs, the acquisition of development rights and

easements, and other methods of ensuring the continuation of agriculture should be encouraged.

5) The Town supports broadening access to educational, childcare, and vocational training opportunities.

6) The Town should conduct an annual review of road conditions in Town and develop a maintenance schedule and transportation capital improvements plan based upon these findings. The Town should continue to develop road policies for the construction, maintenance, and reclassification of town roads.

7) New construction or major reconstruction of roads and highways in the Town should provide paths, tracks, or wide enough shoulders for use solely by pedestrian or other non-motorized means of transportation, when economically feasible or in the public interest.

8) Sidewalk systems should be provided in populated areas, including the hamlets of East and West Berkshire, and alternative recreational paths for public use should be designated by the Town where appropriate.

9) Roads should not be extended into important resource areas, including critical areas, wellhead protection areas, and important agricultural lands.

10) Road identification, direction, and traffic control signs should be erected at appropriate locations throughout the Town.

11) All future roads, including culverts and ditching, that are to be taken over and/or maintained by the Town should be designed to standards approved by the Selectboard and should be appropriately marked.

12) Unnecessary "curb cuts" should be avoided, and appropriately, screened off-street parking should be provided for commercial and high-density residential development.

13) Increasing opportunities for car-pooling among area residents is supported; encourage the use of informal park and ride lots where possible.

14) Opportunities for making town owned buildings more energy efficient will be sought.

15) Enable public and private installation and application of appropriately sited, small scale renewable energy production systems, such as wind

energy conversion and photo voltaic systems.

Artwork by Heather McKeown

"KEEPING IT RURAL" IN THE FUTURE

Earlier sections of this plan address the Town's history, natural and cultural resources, available community facilities and services, and past and anticipated trends in Berkshire's growth and development, all of which affect the way that land is used. The ultimate goal of this planning process is to be aware of past and existing land use, and project the future land requirements for the Town. Land use planning is not meant to stop development. If properly implemented, identifying suitable locations for development allows the community to provide for orderly growth while preserving its character. Land use planning gives the Town the opportunity to choose its future, provide a balance between the natural and built environment, and preserve the traditional settlement patterns, village centers, and rural landscapes that contribute to its identity and sense of place.

Many rural Vermont communities are faced with high growth and development pressures, including Berkshire. Residents of these communities are concerned that uncontrolled growth threatens the traditional landscape of compact village centers surrounded by open fields and wooded hillsides. While Berkshire retains much of its traditional agrarian landscape and agriculture remains vitally important to the community, new residential development is happening primarily outside the traditional village centers. Faced with the changing forces that growth presents, planners are challenged with maintaining the rural agricultural character and small village setting, while accepting and accommodating a fair share of residential development in the greater region.

Berkshire primarily uses zoning and subdivision regulations to manage growth. These regulations are adopted in the Berkshire Land Use and Development Regulations (2007). Zoning regulates the location, type, and density of development within a community through the delineation of zoning districts. Subdivision regulations control the pattern of development and the way land is divided up to accommodate land uses and supporting infrastructure such as roads and utilities. These regulations should be evaluated and updated on a regular basis in response to Town Plan updates. The Berkshire Land Use and Development Regulations divide the town into four (4) zoning districts, which are intended to guide the direction and placement of future growth within the Town of Berkshire. This plan recommends a few minor changes to this map, as shown on Map 7.1. A discussion of current land use trends and associated development recommendations for each district is provided below. Implementing these recommendations will help the Town manage the location, amount, intensity, and character of land uses and timing of development relative to provision of community facilities and services.

A) SOURCE WATER PROTECTION DISTRICT

The Source Water Protection District encompasses the Source Protection Areas for the East Berkshire Water Cooperative and the Enosburg Falls Water System. The purpose of the District is to maintain or improve the quality of these water resources, including surface and ground waters, and to ensure that surface water bodies and corridors are protected and well-managed. Limited residential development should be allowed only as a conditional use.

B) RURAL LANDS DISTRICT

The Rural Lands District encompasses the majority of land area in the Town of Berkshire, excluding the village centers, flood hazard areas, and source water protection areas. The purpose of the Rural Lands District is to conserve the integrity and natural qualities of the agrarian tradition and rural open space for the betterment and future use of the community. The forest and the agricultural character of the District will be maintained, while allowing for rural residential development and compatible commercial establishments at a density the land can support without central water or sewage disposal.

Agriculture, Forestry, and Forested Land

Retaining land in agriculture is critical to the continued vitality of farming in the Rural Lands District. Agricultural land is highly susceptible to development pressures as it often has soils well suited for development. The preservation of productive agricultural lands and primary agricultural soils need to be balanced with the need for some growth.

Forested land covers much of the Rural Lands District. Much of this land is unsuited for development because of poor soil and slope conditions and its importance for wildlife habitat. Many of Berkshire's forests are well-suited for use as small woodlots and low impact recreation, as well as some limited opportunities for larger scale forest industries. However, there are also wooded areas in Town that can provide a quiet, secluded setting for lower density residential development.

Important agricultural and forestry land in the Town should be identified using a "LESA" program. LESA, short for Land Evaluation and Site Assessment, is a method by which important agricultural and forestry land can be identified and earmarked for conservation or protection measures. This method takes into account economic factors related to production, and the intent and desires of the farmer, as well as soil suitability in determining the value of a particular farm or parcel to the community.

Agricultural and forestry land should be protected through owner participation in tax incentive programs (current use), the purchase of development rights/conservation easements, and appropriate development controls. The development of agricultural land if necessary, should be located on wooded and scrub pasturelands that are in limited production and less critical to farming operations or at field edges. Development on agricultural and forested lands should be clustered to retain as much land as possible in production, forest, or open space.

Residential Development

Residential development, including seasonal home development, is expected to account for the majority of land demand in the near future, with the pressure for growth coming from Enosburg Falls, Richford, St. Albans, Canada, and to a limited extent the Burlington area. While clustered, high-density residential development is encouraged in the Expanded Village Districts, it is also expected that a significant amount of residential development will continue in the Rural Lands District. Careful siting and layout of residential development will limit impacts on rural character, agricultural and forestry uses, wildlife habitat, and environmental sensitivities. Development shall avoid agricultural and forestry lands preserving them from fragmentation and conversion. Planned unit developments and clustering of development is encouraged.

Home Business and Other Rural Commercial Development

Home businesses that maintain the working rural landscape of the Berkshire countryside are encouraged to continue as a significant part of the Rural Lands District. There is a place for other commercial development in the Rural Lands District only to a limited extent. It should be carefully reviewed to assure that the rural character of the area is maintained and there are no undue impacts on existing residential, agricultural, and forestry land uses. Zoning bylaws should allow some limited commercial uses only after conditional use and site plan review in the Rural Lands District. Appropriate landscaping and screening is important so that commercial uses blend in with the countryside.

Light Industry and Earth Resource Extraction

There may be appropriate locations for light industry and earth resource extraction in the Rural Lands District. These potentially high-impact uses should be carefully designed to avoid adverse impacts to the local environment, adjacent land uses and community facilities and services. Zoning should allow light industry and earth resource extraction in the Rural Lands District only after conditional use and site plan review. The character of the area can often be maintained through vegetative buffers or screening, and other appropriate land use regulations. Sand and gravel pits in particular, should come under careful public review in order to avoid the many adverse impacts that are often associated with them. In particular, erosion, ground water protection, and site

reclamation plans should be developed.

C) EXPANDED VILLAGE DISTRICT

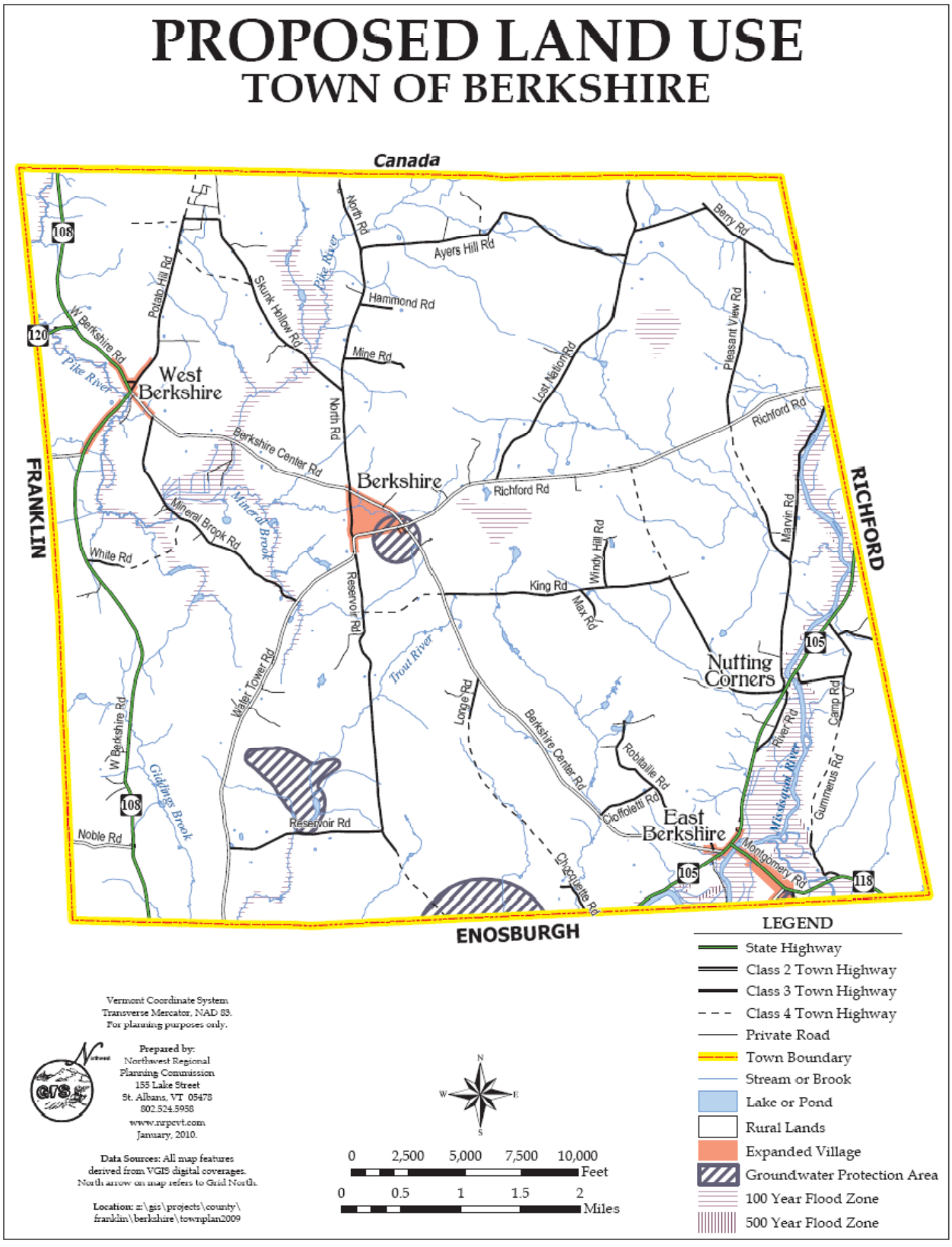
The purpose of the Expanded Village Districts is to maintain and support the role of the village as the focus of many social and economic activities in Berkshire and to provide for residential, commercial and other compatible development that serves the needs of the community. Development should maintain the traditional density and overall social and physical character of the villages, including historic and scenic resources. It should also not exceed the capability of the lands, waters, services and facilities to accommodate such density. Continuing the mix of residences, civic and non-profit uses and commercial establishments is encouraged.

The Expanded Village Districts currently lack any pedestrian amenities. East Berkshire, the largest of the 3 village areas, would benefit from sidewalks and crosswalks for a more pedestrian friendly streetscape. Zoning standards for East Berkshire should require pedestrian amenities and include standards for landscaping, parking, and signs. Off-street parking should be screened and located to the side or rear of a building and signs should be scaled and designed to complement the village character.

The desirability of locating higher density development near existing centers supports the need for a centralized sewer system in East Berkshire. In West Berkshire and Berkshire Center on the other hand, there are a few soils that can accommodate higher densities of development. In these areas, development should be designed and sited to protect local recharge areas and groundwater quality.

D) FLOOD HAZARD AREA OVERLAY DISTRICT

Designation of this area is required for continued participation in the National Flood Insurance Program (NFIP) and is regulated under the Town's Flood Hazard Ordinance. Included are all areas in Berkshire identified as areas of special flood hazard on the National Flood Insurance maps. The purpose of the Overlay District is to prevent health and safety hazards and to minimize property damage due to flooding.


PROPOSED LAND USE
TOWN OF BERKSHIRE
Canada
FRANKLIN
RICHFORD
ENOSBURGH
West Berkshire
Berkshire
Nutting Corners
East Berkshire
Pike River
Trout River
Missisquoi River
Mineral Brook
Giddings Brook
Water Tower Rd
Reservoir Rd
Berkshire Center Rd
Richford Rd
Ayers Hill Rd
Hammond Rd
Mine Rd
North Rd
Potato Hill Rd
Skunk Hollow Rd
W Berkshire Rd
White Rd
Mineral Brook Rd
King Rd
Windy Hill Rd
Max Rd
Marvin Rd
Pleasant View Rd
Berry Rd
Lost Nation Rd
Longe Rd
Robitaille Rd
Cioffoletti Rd
River Rd
Camp Rd
Gummerus Rd
Montgomery Rd
Chicoulette Rd
Noble Rd
108
120
105
118
Vermont Coordinate System
Transverse Mercator, NAD 83.
For planning purposes only.
Prepared by:
Northwest Regional
Planning Commission
155 Lake Street
St. Albans, VT 05478
802.524.5958
www.nrpcvt.com
January, 2010.
Data Sources: All map features
derived from VGIS digital coverages.
North arrow on map refers to Grid North.
Location: z:\gis\projects\county\
franklin\berkshire\townplan2009
0 2,500 5,000 7,500 10,000
Feet
0 0.5 1 1.5 2
Miles
LEGEND
State Highway
Class 2 Town Highway
Class 3 Town Highway
Class 4 Town Highway
Private Road
Town Boundary
Stream or Brook
Lake or Pond
Rural Lands
Expanded Village
Groundwater Protection Area
100 Year Flood Zone
500 Year Flood Zone

Map 7.1

GOALS AND POLICIES: KEEPING IT RURAL IN THE FUTURE

GOAL 1: To maintain the rural, agricultural character of the Town of Berkshire, including the historic settlement pattern of small hamlets separated by rural countryside.

GOAL 2: To protect important natural resources and agricultural use of the land, while at the same time providing sufficient space in appropriate locations for residential, commercial, industrial development, and for community facilities.

Policies:

1) Strip development shall be discouraged. Clustered development, including Planned Unit Developments (PUDs), shall be encouraged where feasible and appropriate in order to protect and maintain important farmland, forestland, and open space.

2) Only development incidental to agricultural production should occur on important agricultural lands. Good management practices, participation in tax incentive programs, and the acquisition of development rights or conservation easements to protect farm and forestland shall be encouraged.

3) Commercial, light industrial, and intensive residential development shall be encouraged on suitable lands located in or immediately adjacent to existing population centers. Development should be designed to be in keeping with the character of the area, should not interfere with traffic flow, should provide adequate parking for employees and customers, and should provide landscaping, screening and/or buffers to minimize any adverse impacts on adjacent lands, important natural resources, or the community.

4) Community facilities and services should be provided in convenient and suitable locations for the safety, use, and enjoyment of local residents. New utility lines should make use of existing corridors and rights-of-way wherever possible. Developers of residential subdivisions may be required to provide land and/or facilities for use by residents of the proposed development.

5) The town encourages agricultural and forestland be maintained for viable economic use, encourages value added businesses, promotes locally grown products, and encourages the implementation of

agricultural/forestry best management practices.

“Center Hill Road” Photo by Arnold Byam

GETTING FROM HERE TO THERE

A) THE CONTINUED PLANNING PROCESS

The Comprehensive Municipal Plan for the Town of Berkshire discusses at length, the Town's history, present situation, and proposals for desirable growth and development in the future. Implementing the plan by turning it into a living, functional document is the ultimate challenge of the planning process.

Proper implementation of this plan will require continuing the planning process as outlined in the first four goals of "Act 200" (Figure 7.1). All Berkshire residents are encouraged to participate actively in each stage of the planning process. Development should be guided by local decision-makers, with consideration given to the appropriate use of the Town's resources and the consequences of growth. Cooperative efforts should be undertaken between Berkshire and its neighboring municipalities, the region, and the state in developing compatible plans.

Figure 7.1
Act 200 Planning Process Goals

(1) To establish a coordinated, comprehensive planning process decisions by municipalities, regional planning commissions, and state agencies.
(2) To encourage citizen participation at all levels of the planning process, and to assure that decisions shall be made at the most local level possible commensurate with their impact.
(3) To consider the use of resources and the consequences of growth and development for the region and the state, as well as the community in which it takes place.
(4) To encourage and assist municipalities to work creatively together to develop and implement plans.

Also, as required by Act 200, the Town's planning process will be reviewed and "confirmed" by the Regional Commission at least once over the next five years. This will ensure that the Town remains eligible for state planning appropriations and grants. These funds are intended to assist in the financing of local planning efforts. At the same time, the Town is expected to continue to provide financial support for the local and regional planning process.

Plan Coordination and Compatibility

It has been readily demonstrated in the past that it is very difficult for a town to plan in isolation from its neighboring communities. The impacts of growth and development on the community and the environment often do not recognize, or may be intensified by, artificially drawn political boundaries. Battle lines are too often drawn when cooperation is needed instead. Act 200 encourages communities to work with each other and with the region and state in order to

coordinate their planning programs. At the same time, it is necessary to recognize that each community is unique in its character, needs, and desires. Communication is an essential part of the planning process.

During the writing of this town plan, the Planning Commission reviewed the town plans of neighboring communities, which include Franklin, Enosburg Falls and Town, and Richford. The Planning Commission looked at the plans for compatibility with Berkshire's proposed land use map and discussed the status of any multi-town issues, such as traffic or water quality. A summary of this analysis is provided in Figure 7.2.

Berkshire planners should try to schedule periodic meetings with planners from neighboring commissions and the Town should maintain its representation on the Board of Regional Commissioners. State planning efforts can be tracked through direct contact with State agencies, through the Regional Commission, and through other statewide organizations such as the Vermont Planning Association.

Figure 7.2
Land Use Compatibility with Adjacent Communities

Along the Berkshire/Franklin border, proposed land use is generally compatible. Berkshire's Rural Lands District abuts Franklin's similar Rural Residential/Agricultural District. The only area where land use plans differ is in East Franklin, where Franklin's Village District borders Berkshire's Rural Lands District. While the Village District allows more commercial uses and higher density development than the Rural District, there are no compatibility issues.

Along the Enosburg Falls/Berkshire border, proposed land use is generally compatible. Enosburg Falls' conservation, recreation, and low-density residential districts border Berkshire's Rural Lands District. One issue of note for both municipalities is the location of the back-up reservoir for the Enosburg Water System off Reservoir Road in Berkshire.

Along the Enosburgh Town/Berkshire border, proposed land use is generally compatible. Enosburgh's agricultural and rural residential zones abut Berkshire's Rural Lands District, while a source protection area is equally protected on both sides of the town line.

Along the Richford/Berkshire border, proposed land use is generally compatible. Richford's agricultural and conservation district abut Berkshire's Rural Lands District. The only exception is where Richford's commercial/industrial, commercial, and rural residential districts border Berkshire just after Route 105 passes into Richford. These heavier land uses have been sited well and have not presented any compatibility issues with Berkshire's Rural Lands District.

Work Program

The work program on the following page outlines a recommended course of

action over the next five years to implement the long-term goals and objectives identified within the plan. This program is intended as a guide for the planning commission. It is recognized that the planning commission may not have the time or funding to be able to accomplish all that is set forth. Plan implementation through the development of zoning and subdivision regulations should be given immediate attention and meeting the requirements of Act 200 should be on-going.

B) WORK PROGRAM

The Continuing Planning Process:

- Work to incorporate the goals and planning elements of Act 200 (Title 24, Chapter 117 V.S.A.) into the plan and the planning process (5 years).

- Pursue regular communication with neighboring communities, the Regional Commission, and state agencies in order to coordinate planning efforts.

- Sponsor public informational meetings and workshops to encourage public participation in the planning process.

- Pursue available grants as needed to fund planning efforts.

Plan Implementation:

- Maintain and revise as needed a zoning and subdivision bylaw, including design and siting criteria and performance standards, which incorporate the goals and policies of the plan and all new requirements in Title 24, Chapter 117, V.S.A. Consider whether the allowed density in the Rural Lands District is meeting the Town's goals.

- Develop a capital budget and program for the Town, which schedules municipal capital improvements and expenditures based upon identified needs, available financing, and the Town's ability to accommodate growth.

- Actively participate in Act 250 hearings and other state project review procedures to ensure that projects are in conformance with Berkshire's Municipal Plan (as needed).

- Assist the Selectboard in developing the following:

- a road policy and ordinance
- an impact fee ordinance
- a building code

Special Studies and Projects:

The following studies may be conducted or sponsored by the planning commission as funding, time and interest permit:

- Conduct a detailed land use survey, including the identification of important agricultural land using a LESA system.

- Identify important sand and gravel deposits in the Town, and determine whether they are also important aquifer recharge areas.

- Conduct a local housing study to evaluate the condition and affordability of housing within the community.

- Support the local historical society, assist in the update of the State's Historical Sites and Structures Survey for the Town, and identify potential nominations for the state and national historic registers.

- Encourage the formation of a Conservation Commission for the Town of Berkshire.

- Pursue funding opportunities to complete electronic parcel mapping of the Town.

- Pursue Village Designation from the Vermont Downtown Program for East Berkshire and Berkshire Center.