Barnard General Store

Barnard Town Plan

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by the Barnard Planning Commission

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by the Barnard Select Board

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I. INTRODUCTION

The Planning Commission has developed this Plan based on the premise that the majority of the citizens of the Town wish to preserve the rural, small town character of Barnard. A well-grounded Town Plan is the foundation for ensuring appropriate development and conservation of the community's resources. Effective town planning and subsequent implementation of policies and recommendations will reduce conflicts arising from change. This Plan is a statement of how the Town has reached its present state, the current situation, a description of elements of the Town that should be preserved, recommendations for future growth and development and a blueprint for how those recommendations should be implemented.

The Barnard Town Plan provides a framework to be used for accomplishing our community's aspirations over the next five years. It gives specific guidance while retaining enough flexibility to be useful when faced with unforeseen circumstances. It will need to be reviewed and revised in five years to ensure it is still an appropriate vision for the Town.

This Plan should be viewed as a whole, with goals, objectives and recommendations viewed as an integrated, interdependent system of statements. For example, this Plan supports development in certain areas and the preservation of undeveloped areas, but these apparently contradictory desires must be read together and it will become clear that in different areas of town some desires take precedence over others.

The Plan aims to help the citizens of Barnard better define and direct the future of their community. It is a planning tool that provides a vision of what the community should be over the next five to ten years. The Plan is to be used by the Town boards, commissions, departments, residents, developers and businesses in a number of ways:

Provide a framework for planning the future of the Town;

1. Assist in the development of a capital budget and program;
2. Direct the formulation of departmental policies and strategies;
3. Serve as a basis for responding to Act 250 permit requests;
4. Guide decision making in site plan review and conditional use review;
5. Present a framework for developing Zoning Bylaws and subdivision bylaws;
6. Supply data and solutions to planning issues;
7. Recommend future planning studies to be carried out.

Each Plan section will begin with relevant background information, and then have goals, objectives and recommendations. ***Goals*** are long-range aspirations which serve to establish the Town's future direction, and may describe the end conditions that are sought. ***Objectives*** are general strategies designed to address the goals. ***Recommendations*** are specific courses of action designed to achieve objectives and are usually able to be implemented within the next five years.

The general goals of this Plan are to:

1. Protect the rural character of the Town;
2. Continue Barnard village and East Barnard village as town centers;
3. Promote safe and healthful housing for all segments of the population;
4. Promote environmentally sound development practices.

The general objectives of this Plan are to:

1. Establish land use goals that provide adequate space for needed types of land use, both public and private, in locations that minimize the adverse impact of one land use on another;
2. Protect and allow for the judicious use of the Town's soils, minerals and stone, forests, agricultural lands, waters and other natural resources;
3. Support the adequate and economical provision of transportation facilities, schools, parks and other public requirements in relation to development; and
4. Protect the Town's historic sites which are significant contributors to the Town's essential character.

II. HISTORY OF BARNARD/HISTORIC PRESERVATION

Barnard, chartered as Bernard on July 17, 1761 and later misspelled Barnard, was named in honor of Sir Francis Bernard who was the governor of the Massachusetts Bay Province. New Hampshire, New York and Massachusetts all sought to control the area, with Vermont gaining its independence in 1791.

The plot of land, approximately 49 square miles in area, was properly called a hill town. The geographical center, Silver Lake, covers approximately 84 acres and was originally called Stebbins Pond after the owner of the land where the village now stands. The region was a virgin forest of beech, birch and hemlock with scarcely a trail except for those of the surveyors. There is no evidence that Indians ever occupied any part of the Town, although it is probable that it was part of their hunting grounds.

Although chartered in 1761, Barnard's first settlers, hailing from Old Hardwick, Mass., cleared land and built their crude log cabins in 1775. The first settler, Thomas Freeman, purchased 450 acres at the head of Broad Brook for 60 cents an acre. Early settlers were hardy, industrious, God-fearing men and women who had to work hard to make a living from the inhospitable land.

Church and town meetings were one and the same, providing about the only social life for the early settlers. Raisings, huskings, quiltings and apple parings were other forms of entertainment. Fort Defiance was built after the 1780 Royalton Indian raid when the population of men, women and children had reached 300. Barnard residents have served unselfishly in all wars beginning with the Revolution.

Barnard enjoyed a variety of commercial ventures in addition to farming. Sawmills were an early industry, the first one being built at the outlet of Stebbins Pond (now Silver Lake) in 1784. There was a carriage maker's business opposite the present Universalist Church, tanneries, a gravestone business, carding machining, several distilleries and a printing and publishing business. Lime was necessary for making plaster, chimneys, ovens and fireplaces for the new frame houses that were replacing the log cabins and was processed by several businesses in the Lime Pond area around 1816.

Early settlers supported church and state through taxes by law until 1801 when the law was modified to allow any voter to certify for himself that he did not "agree in religious opinion with a majority of the inhabitants of the town." Early settlers were orthodox Congregationalists with the Universalists and Methodists being granted permission to build in 1802.

Early settlers in Barnard did not have the same need for roads as people of today. One of the first roads referred to in town records was in 1803 when a Mr. Miles was instructed to blaze a road to Stockbridge and to begin at the northwest corner of Fort Defiance. Two other early roads, now abandoned, connected the Creek with the North Road. In 1800, the Woodstock and Royalton Turnpike Company petitioned to build and maintain a turnpike from the courthouse in Woodstock to the meetinghouse in Royalton. Two gates were erected and tolls collected--"for every four wheeled carriage drawn by one beast, thirty cents--for every wagon or cart drawn by two beasts, twelve cents--for all horses, mules and neat cattle led or driven, one cent each". The road did not prove to be a paying investment and was later taken over by the towns.

There were several hotels, taverns and accommodations for travelers in town. Probably the most famous was the Aiken Stand located on the regular stagecoach run on the turnpike where, in 1817,

President Monroe stopped and, in 1825, General Lafayette stopped on his way to Montpelier. The village always provided the chief trading center, but the village at East Barnard administered to a section of three towns and, until recently, did a considerable business. Barnard General Store on the shores of Silver Lake and in almost continuous operation since 1832, with only a brief closing in 2013, is the heart of the Barnard community. While other stores have opened and closed throughout the years, a unique model was established in an effort to reopen and sustain the Barnard General Store. With guidance from the Preservation Trust of Vermont, the Barnard Community Trust raised the necessary funds to acquire the store and 1.25 acres of land. During the 1830 census, the population reached its high point at 1881 people. There were 17 school districts then, with approximately 90 students each in South Barnard, East Barnard, Village, Creek and Chateauguay, for a grand total of 446 school children that year.

The present Town Hall was the new Methodist meeting house dedicated on December 27, 1837 and sold to the Town in 1867 for $500. Realizing that Barnard residents lacked the "opportunity for culture" available to larger areas, Charles B. Danforth gave the town $500 in 1903 to found a Free Public Library. (The information above was taken from the “History of Barnard, Vol. I & II” written by William Monroe Newton, Copyright 1928, Vermont Historical Society)

Barnard, being a town settled for well over two hundred years, has a wealth of history from its buildings and stone walls to its human stories. While many individuals do their part to preserve the Town’s rich heritage, the Barnard Historical Society, organized in 1977, exists for this purpose. The Society meets four times a year and maintains a Historical Museum. The purposes of the Society, as stated in its charter, are to "seek out, collect, preserve, record and restore whatever materials, records, artifacts, etc.., that are related to the history of Barnard, Vermont; to disseminate information and conclusions through records, publications, meetings, displays, etc.., to emphasize the value of such materials and to encourage their careful preservation for the future."

Barnard’s Historic Structures include:

- The Barnard General Store,
- The Danforth Library,
- The Town Hall, and
- The East Barnard Community Hall

Goal

1. Preserve the historical assets of the Town.

Objective

1. Preserve historical structures/sites in Town through prudent town planning.

Recommendations

1. The Town should map historically significant properties, including cemeteries, meeting houses and schools and identify previous locations of these or similar historical structures or areas of Town.
2. The Town should ensure that landowners are aware of any significant historic locations (as mentioned above) and the Town should support owner’s efforts to preserve these locations.
3. The Town should keep the Danforth Library, Town Hall and East Barnard Community Hall buildings in good condition and respect their historical character.

4. The Town should seek National Historic Site designations for old schoolhouses and their exteriors should be preserved in their historical shape.
5. The Town should continue to consider development's impact on historic structures or sites.

III. CURRENT AND PROPOSED LAND USE

Barnard is a primarily forested and hilly town with elevations that fall from west to east, starting at just over 2,400 feet in the undeveloped Chateauguay-No Town forests in the southwestern part of town and dipping under 1,000 feet on the town's eastern side. Barnard sits astride the watershed divide between the White River to the north and the Ottauquechee River to the south. Neither river flows in Barnard, just rocky tributaries to them, including Locust Creek and Broad Brook flowing north and Gulf Stream flowing south.

While most of the town is moderately steep, the largest areas of relatively level open land are in the northern half of the town along VT Route 12, the North Road, Royalton Turnpike and along Broad Brook. Silver Lake, the largest waterbody in town, is located very near the geographic center of town (and surprisingly near the watershed divide) and has long been one of the main economic engines for our town. Barnard Village, our main village, is located at its outlet. The only other sizable village in Barnard is East Barnard, almost on the town's northeast border with Pomfret and Royalton. There are smaller hamlets in town including Newcombsville, Mountain Meadows and Fort Defiance. Besides Silver Lake, the only other sizable body of water is Lakota Lake. Development is almost all residential or agricultural with a few businesses scattered about town and in the villages.

Barnard's outstanding beauty and peacefulness derive largely from its rural character and from its residents' collaboration with the land and their respect for its resources.

Proposed Land Use

The Town of Barnard has a distinct pattern of settlement which has emerged over time in response to cultural and social attitudes, as well as to natural environmental considerations. This pattern is one of small, localized centers of village and hamlet settlement composed of residential and commercial uses, surrounded by very sparsely settled rural agricultural and forest lands, with limited development along the road network. Over the years this pattern of settlement has demonstrated itself to be of sociological, psychological and aesthetic benefit to the Town, while simultaneously providing a system which is both efficient and economical for the conduct of business and the provision of social and community services.

Even though maintaining the existing settlement pattern of the Town is a fundamental goal of this Plan, development pressure within the Town is a reality. More and more homes are being built in rural areas, particularly in close proximity to maintained town roads well outside of the existing community centers. Maintaining a sense of community and environmental quality, which makes Barnard a pleasant place to live and work, is becoming more difficult due to these recent land use trends. Nevertheless, because the existing pattern of settlement has served the public interest for well over 200 years, it is the purpose of this Plan to maintain and to enhance this pattern wherever possible.

Future Land Use

The pattern of proposed development maintains established compact village and hamlet areas with medium density. Commercial operations catering to the public and light industrial development are planned for existing village and hamlet areas and existing commercial areas with future commercial development in the villages, hamlets and existing commercial areas only. Small home occupations and home businesses are appropriate in the rural farm and forest areas with conditions that limit

their impact. High density development is not possible in town due to a lack of public sewer or water.

Rural, low density development is proposed to be located in areas without physical constraints, outside of critical areas, and outside of agricultural lands. The development of the largest, contiguous agricultural and forest areas is discouraged, while some small patches of current agricultural areas may be suitable for low density development. The rural, low-density development proposed follows the existing roadways so no new roads need to be built at taxpayer expense.

The very rural, essentially undeveloped Chateauguay area is proposed as a conservation area to be maintained in its undeveloped state hosting only small camps and few permanent housing units or commerce. A smaller section of town west to East Barnard Village is also proposed as a conservation area, but in keeping with its less remote and more settled nature, greater density and home business uses would be allowed. Other areas in Barnard that are steep, not well suited for septic systems and have very limited highway access are not conducive to development and are planned to have little development, instead focusing on providing for conservation of forest, watershed and recreation resources. The neighboring towns of Pomfret, Bridgewater, Royalton and Stockbridge all have forested areas contiguous to Barnard, making this one of the best multi-town recreational assets in this Region.

A Future Land Use Map has been produced and is part of this Plan to illustrate the desired future land uses in Barnard. The map can be found at the end of the Plan. Input on the creation of this Map included past planning documents. The delineation of proposed districts on this map may change slightly as this plan is put into action. The Conservation Commission should work especially with landowners in the proposed Barnard Chateauguay and East Barnard Conservation Areas and Prosper Valley to educate them about conservation planning.

To ensure that Barnard's landscape be protected for future generations, eight land-use areas and three overlays have been established:

- Barnard Chateauguay Conservation Area
- East Barnard Conservation Area
- Rural, Forest, and Farmlands Area
- Barnard Village
- East Barnard Village
- Hamlet Areas
- Commercial Areas
- Lakeshore Area
- Prosper Valley Overlay
- Silver Lake Watershed Overlay
- Flood Hazard Overlay

Overall Land Use Goals

1. Locate higher density mixed use development in the villages and hamlets.
2. Encourage both residential and non-residential development only in areas where adequate public services are available or planned.
3. Protect and conserve rural areas and their natural resources by promoting conservation and sustainable resource management.

4. Discourage development in undeveloped farmlands, forest lands and especially the Barnard Chateauguay Conservation Area. Such tracts are intended to remain predominately as undeveloped or limited development areas for the purposes of conserving existing resource values.
5. Ensure the future of and protect the following: forestry under sound silvicultural guidelines, wildlife habitat, unique plant or animal habitats, clean air and the ability to see the night sky without the interference of bright lights. Wetlands and watercourses in general are afforded protection under Federal and State rules but should be given special consideration in the Town's regulations.
6. Permit development in a way that sustains the Town's rural character.
7. Consider scenic values in development and land use decisions.

BARNARD CHATEAUGUAY CONSERVATION AREA

The Chateauguay No Town Conservation area comprises approximately 55,000 acres of largely uninhabited forestland located in Barnard, Stockbridge, Killington and Bridgewater between U.S. Route 4 to the south and Vermont Routes 12 to the east, 107 to the north and 100 to the west. (See attached map.) This Town Plan proposes a conservation area only within a portion of this area within Barnard.

The purpose of this land-use area is to protect water quality and wetlands, maintain appropriate recreational opportunities, conserve contiguous forestland and wildlife habitat and encourage sound silviculture. New development shall be limited to very low density, non-commercial development (i.e., not less than 27 acres per development). In the BCC, the use of small scale non-commercial renewable energy options to power the scarce residences within this area is encouraged in order to avoid the impacts of power lines.

Goal

1. Conserve the Barnard Chateauguay Conservation Area.

Objectives

1. Protect water quality, wetlands and watersheds.
2. Maintain appropriate recreational opportunities.
3. Conserve contiguous forestland and wildlife habitat.
4. Continue working with Bridgewater, Killington and Stockbridge to conserve the Chateauguay No-Town area.
5. Encourage sound silviculture practices.
6. Encourage the use of small scale non-commercial renewable energy options to power the scarce residences within this area in order to avoid the impacts of power lines.
7. New development shall be limited to very low density, non-commercial development.

Recommendations

1. The Barnard Conservation Commission (BCC) should continue to work with the Chateauguay No-Town Committee (CNT), the Conservation Fund (CF) and the Vermont Land Trust (VLT) to educate and assist landowners with the conservation of their land.
2. The BCC will work with the White River Partnership and the State's Water Quality Division on establishing the highest possible management types and classifications for the Barnard Chateauguay Conservation Area that reflect Barnard's goals for the area.

EAST BARNARD CONSERVATION AREA

The purpose of this land-use area is similar to the Barnard Chateauguay Conservation Area, except in keeping with the less remote and more settled nature of the East Barnard Conservation Area, greater density (i.e., not less than 10 acres per development) and home business uses would be allowed in the East Barnard Conservation Area than in the Barnard Chateauguay Conservation Area.

Goal

1. Conserve the East Barnard Conservation Area.

Objectives

1. Protect water quality, wetlands and watersheds.
2. Maintain appropriate recreational opportunities.
3. Conserve contiguous forestland and wildlife habitat.
4. Encourage sound silvaculture practices.
5. Encourage the use of small scale non-commercial renewable energy options to power the residences within this area in order to avoid the impact of power lines.
6. New development shall be limited to very low density, non-commercial development.

Recommendations

1. Allow greater residential density than in the Barnard Chateauguay Conservation Area, but less than in the Rural, Forest and Farmlands Area.
2. Explore alternatives in addition to traditional zoning which limit development to low impact uses.
3. The Barnard Conservation Commission (BCC) should continue to work with The Conservation Fund and the Vermont Land Trust and other appropriate organizations to educate and assist landowners with the conservation of their land.

RURAL, FOREST AND FARMLANDS AREA

This area is comprised of all lands not designated in any other area and is meant to be developed in a moderately dense manner consistent with a working rural. The purpose of this land-use area is to allow development at a moderate density (i.e., not less than two acres per development) consistent with a working rural landscape that also provides opportunities for residences, as well as businesses that are compatible with this type of area and not best situated in a village setting; such as, principal retail.[1]

Goals

1. To maintain our rural landscape and scenic resources.
2. To protect the environmental integrity of forests, fields, wetlands, floodplains and surface waters.
3. To protect productive forest and farmland.

Objectives

1. Maintain a pace of development that Town institutions and our road system can sustain.
2. Require that density and placement of new buildings in subdivisions be compatible with agricultural use and desired land use patterns.

[1] ***Principal (Primary) Retail*** *- A business whose primary use is the supply of merchandise or wares to the end consumer. Examples include (but are not limited to), supermarkets, hardware stores, dry-goods stores, pharmacies, big box stores, etc.*

3. Promote forest products and recreation as well as alternative and traditional farming.
4. Preserve wildlife habitats and the corridors between them.
5. Deter "sprawl" by evaluating subdivision of land.
6. Protect steep slopes and ridgelines from inappropriately sited development.
7. Provide for low density residential development, with home businesses whose impacts are limited so that they do not detract from the rural nature of the district and are in keeping with residential areas.

Recommendations

1. The Planning Commission and Selectboard should evaluate the ability of Town services and infrastructure to accommodate growth.
2. The Planning Commission should work on a soils and productive farms overlay map and use it to identify the most important farmlands in town.
3. For larger subdivisions, the Town should consider allowing a rural version of cluster development with shared access to open spaces.
4. The Town should adopt subdivision regulations for the division of large parcels of land into smaller ones, along with provisions to avoid forest fragmentation, and consider maximum density provisions such as only allowing one building per 5 acres, while allowing smaller minimum lot sizes.
5. The Planning Commission should investigate regulations on exterior lighting.
6. The Town should work with landowners to encourage access for recreational activities on land.
7. The Selectboard should adopt access management techniques (see Transportation section).
8. The preservation of stone walls and old stone foundations should be reasonably accommodated during the design of developments.
9. The Planning Commission and Conservation Commission should study the idea of transfer of development rights and tax incentives to promote "smart growth" and encourage through incentives the preservation of working forests and farms on large parcels.
10. The Planning Commission should consider special provisions for ridgeline development to lessen scenic and environmental impacts.
11. Encourage grazing and mowing arrangements between farmers and property owners.

VILLAGE AREAS

Barnard Village: The purpose of this area is to allow mixed uses, home occupations, home businesses, limited commercial uses and residential uses in a higher density (i.e., not less than one acre per development) than the surrounding rural areas, as well as institutional and civic land uses, such as post offices, public schools, banks, civic buildings, the Town Hall, town offices and senior centers.

East Barnard Village: The purpose of this area is to allow mixed uses, home occupations, home businesses, limited commercial uses and residential uses at a higher density (i.e., not less than one acre per development) than the surrounding rural areas.

Goal

1. To strengthen the existing 'sense of place' in Barnard and East Barnard Villages by encouraging development in these Town centers.

Objectives

1. Designate the villages of Barnard and East Barnard as village centers.
2. Retain the post office in Barnard village.
3. Consider historical land use patterns and buildings in Barnard and East Barnard when evaluating proposals for new construction.
4. Encourage higher density in the village centers consistent with those in traditional Vermont villages and allow for expansion areas adjacent to built up areas.
5. Principal retail shall only be located in villages and hamlets.

Recommendations

1. The burial of all new utility lines is encouraged when reasonable.
2. Reasonable and safe access between (sidewalks, paths, etc.). As walking is increasingly recognized as an essential part of healthy living, the Planning Commission should seek opportunities to improve the walking environment within the village and hamlet areas. (For example, a safe, walkable linkage between Barnard Academy, General Store, and Silver Lake.)

HAMLET AREAS

There are smaller Hamlet areas in town including Newcombsville, Mountain Meadows, and Fort Defiance that have, or historically had, a greater density of buildings than the surrounding countryside. The purpose of these areas is to allow moderate density (i.e., not less than one acre per development) and mixed development at a scale between that of the village areas and the Rural Forest and Farmlands areas in historic hamlets.

Goal

1. Allow moderate density and mixed development at a scale between that of the village districts and the Rural Forest and Farmlands district.

Objectives

1. Allow limited non-residential development compatible with residences.
2. Enable a greater density of residential development.

COMMERCIAL AREAS

Commercial activities outside of village and hamlet areas have been recognized and allowed within our Zoning Bylaw as a Commercial District for over three decades. Preserving existing commercial areas located outside of village and hamlet areas maintains community vitality and provides services and economic opportunity. The uses allowed in the Rural, Forest and Farmland Area should be allowed within the Commercial Area at a density of not less than two acres per development.

Goal

1. To maintain existing commercial areas located outside of village and hamlet areas.

Objectives

1. Preserve commercial opportunities at locations where they have naturally developed over time.
2. Deter strip development and sprawl by limiting commercial activities to their existing locations and ensuring that principal retail establishments are located in the village centers and hamlets.

Recommendations

1. Retain the existing commercial areas in future zoning bylaws at the locations that are the existing commercial areas.
2. Commercial uses allowed in the Commercial Area shall be conditional uses subject to criteria that limit their size and impact.
3. The permitted and conditional uses allowed in the Rural, Forest and Farmlands Area shall also be allowed in the Commercial Area.

PROSPER VALLEY OVERLAY

An "overlay" area provides considerations in land use and development in addition to those already in place for whatever areas it covers. The Prosper Valley area of town contains highly scenic views and these views are seen by many due to VT Route 12 following the bottom of the valley. The area also contains working farms and is the headwaters of Gulf Stream and its aquifer which feed wells for the Town of Woodstock. Specific studies have focused on this area and the report, "Where our four towns meet," is the culmination of these.

The purpose of this overlay is to protect the scenic landscape, agriculture and water quality in this part of town while still allowing types of development as permitted in the underlying land-use setting.

Goal

1. To protect the scenic landscape, agriculture and water quality in a rural setting.

Objectives

1. Preserve agricultural uses.
2. Limit the visual impact of hillside and ridgeline development.

Recommendation

1. Consider expanding protections.

SILVER LAKE WATERSHED OVERLAY AND LAKESHORE AREA

Silver Lake contributes greatly to the aesthetic and economic value of Barnard making our Town a special place. Silver Lake, a small lake of only 84 acres, is considered one of the healthiest bodies of water in the State of Vermont. The Town of Barnard, the State of Vermont (its legal owner), users of the lake, abutters and the Silver Lake Association must work together to retain its beauty and health.

In addition to the Zoning Bylaws' regulations already in place in the Lake Overlay, the Silver Lake Area Overlay focuses on the lake itself in order to protect it from invasive species (Eurasian Milfoil) and excessive motor boat traffic which have destroyed so many of Vermont's other lakes.

Within the overlay outside of the village land-use area, no land disturbance is allowed within a stream buffer extending 35 horizontal feet from a river or perennial stream except for accepted agricultural and forestry practices, road and driveway crossings, crossings to access fields, permitted septic repairs, utility crossings, crossings by recreational trails, removal of debris necessary to rectify a natural Barnard Unified Zoning and Subdivision Regulations 16 catastrophe, stream restoration projects in accordance with a plan approved by the Vermont Agency of Natural

Resources, and maintenance of existing structures. The creation of new lawn areas is not permitted within a stream buffer, but vegetation may be pruned and dead or hazard trees removed as long as the overall forest canopy is maintained, and openings of the forest canopy may be created by removal of vegetation not to exceed 5% of the stream buffer area.

Goals

1. To protect the beauty and environmental integrity of Silver Lake while encouraging its safe and responsible enjoyment.
2. To preserve the small town atmosphere that has always prevailed at Silver Lake.

Objectives

1. Minimize lake-side development and retain a naturally vegetated shoreline.
2. Abide by the Clean Water Standards and Water Safety Recommendations recommended by the State of Vermont.

Recommendations

1. The Conservation Commission should initiate an intense campaign to inform fishermen, boaters and lakeshore property owners about the dangers of milfoil and other invasive aquatic plant and animal species, as well as best management for lawns to reduce nutrients.
2. The zoning administrator should ensure that lakeside conversions of dwellings are having septic systems permitted properly.
3. The Town should work with the state to explore the creation of a public access point with proper signage to avoid negative impacts to the lake species, as well as best management practices for lawns to reduce nutrient runoff.

FLOOD HAZARD OVERLAY

In Barnard there are lands adjacent to streams and brooks which are subject to occasional flooding. These flood-prone areas are natural extensions of these water bodies. They retain excessive amounts of water occurring as runoff during heavy rains and spring thaws, control the velocity of water flow during floods and serve to trap sediment.

Flood-prone areas are unsuitable for development for many reasons: there is a potential for danger to life and property, floods may cause the stream channel to move within the floodplain, and subsurface sewage disposal systems do not function properly when influenced by high water. In addition, flood-prone areas are usually locations of good agricultural land and contain most of the areas of flat land suitable for future use as agricultural areas. These areas can also be used for other human activities which do not pose safety or health problems for the community or for property owners. Barnard's flood hazard areas have been mapped by the Federal Emergency Management Administration (FEMA), but with only limited information and are only approximate in location.

The purpose of this overlay is to prevent increases in flooding caused by the uncontrolled development of lands in areas of special flood hazard, and to minimize losses due to floods by:

a) Restricting or prohibiting uses that are dangerous to health, safety, or property in times of flood or cause excessive increase in flood heights or velocities;
b) Avoid and minimize the loss of life and property, the disruption of commerce, the impairment of the tax base, and the extraordinary public expenditures and demands on public services that result from flooding;

c) Ensure that the selection, design, creation, and use of development is reasonably safe and accomplished in a manner that is consistent with public wellbeing, does not impair floodplain services or the stream corridor,
d) Manage the flood hazard area designated pursuant to 10 V.S.A. Chapter 32 § 753, the municipal hazard mitigation plan; and make the Town of Barnard, its citizens, and businesses eligible for federal flood insurance, federal disaster recovery funds, and hazard mitigation funds as may be available.

Goal

1. To prevent flood damage and retain flood storage capacity.

Objectives

1. Preserve floodplains and associated risk areas in a state where they can handle flood flows without damage to property.

Recommendations

1. The Town should determine areas subject to streambank erosion hazards in consultation with the state's River Management Program and consider regulations for these areas.

CRITICAL NATURAL AREAS

An analysis of the natural features, processes and formations which comprise Barnard is an important part of developing the Town Plan. Critical natural areas encompass natural heritage areas that support rare species and important natural communities that are an assemblage of species. Critical natural areas are irreplaceable and function in the maintenance of the environmental health and quality of the Town. They are often small and do not lend themselves to accurate mapping at a town scale and are therefore difficult to create a land-use area for; however, they require special conservation and protective measures. The nature and importance of these critical areas are described below with recommendations which constitute an environmental conservation policy for the Town.

Goals

1. To protect critical natural areas from environmental damage.
2. To ensure the town and the public do not incur costs associated with development in unsuitable areas.

Objective

1. Develop regulatory and non-regulatory ways to protect the special qualities of critical natural areas.

Recommendations

1. The Zoning Bylaws should be revised to ensure that development avoids building in natural heritage areas or outstanding natural communities.
2. The Conservation Commission should inventory critical natural areas.

STEEP SLOPES

The steepness or slope of the land is an important physical factor directly affecting the natural processes of water runoff and erosion. This in turn influences other natural processes such as the formation of soils, as well as those related to human occupation and use of the land. Generally, as

the slope increases, the suitability of the land for development decreases. Steep slopes are more susceptible to erosion caused by high rates of runoff, and when vegetation is removed for the construction of roads and buildings severe environmental damage can take place. Steeper slopes also have a higher landslide risk. The proper installation and functioning of subsurface wastewater disposal systems is severely limited on steep slopes. In addition, development on steep slopes can be costly to the Town when erosion causes increased sedimentation of surface water bodies or impacts town culverts. Access by emergency vehicles on steep driveways is also a concern with development on steep slopes.

Goal

1. To ensure development on steep slopes is not harmful.

Objective

1. Consider the creation of steep slope standards.

Recommendation

1. Ensure slopes greater than 25 degrees in steepness should remain predominantly in forest cover. Development on these areas should be permitted only if it can be demonstrated that development will have safe access and not be detrimental to the environment.

HIGH ELEVATIONS

Because Barnard is located in the foothills of the Green Mountains, the tops of Barnard's hills tend to be relatively high. On these higher elevations the rainfall is greater, air and soil temperatures are lower, soils are more shallow, poorly drained and low in nutrients, slopes are usually quite steep and there are fewer plant species. Increased rainfall on steep slopes, shallow soils and disturbed ground cover create the potential for serious erosion problems. Once erosion has begun it is hard to stop because the few existing natural species of plants grow quite slowly and cannot establish themselves quickly enough on steep slopes where erosion forces are greatly accelerated.

Mountain soils absorb large quantities of water which come from the high rainfall and fog moisture collections from forest trees. The water filters through the thin soil and adds to stream flows, springs and eventually ground water supplies in the valleys. An abundant supply of clean potable water is one of the most vital natural resources.

Goal

1. To protect high elevation areas.

Objective

1. Ensure that the unique qualities of high elevation areas are protected.

Recommendations

1. The Conservation Commission should identify and map the delicate ecosystem of higher elevations to protect them from detrimental development or development that would interfere with their function as a continuing source of clean water for both surface and ground water supplies.
2. Future revisions to the Zoning Bylaw should consider using elevation in restricting development.

SHALLOW AND WET SOILS

Shallow soils are very susceptible to erosion, and once bedrock is exposed the regeneration ability of soils and plants is greatly reduced. Soils that are excessively wet have a seasonal high ground water table, creating severe limitations for development. If subsurface disposal systems are constructed in these areas, pollution of ground water supplies is almost guaranteed. These wet soils, because of their low load-bearing capacity, often do not provide adequate strength for the construction of buildings.

Goal

1. To discourage development on shallow/wet soils.

Objective

1. Regulate development on areas with shallow/wet soils so that they are safe and do not harm water quality.

Recommendation

1. In areas where shallow or wet (hydric) soils exist, the Town should consider prohibitions on development or strict performance standards.

SURFACE WATERS

The brooks and streams, as well as Silver Lake, which comprise Barnard's surface water resources are perhaps the most important of the Town's natural resources. These water bodies not only provide an important amenity for recreation and scenic value, but also are connected with groundwater, which is the current source of private water supplies and the potential source of future municipal water supplies. The continued use of surface water is directly related to its quality. The State has passed a Water Pollution Control Act regulating the quality of waters in the State. This Act forbids, except by special permit, the discharge into the waters of the State of any waste which reduces the quality of the receiving waters. Agriculture and forestry, when done according to state standards are assumed, by law, not to be degrading water quality; however, many areas of the state are impacted by agricultural runoff.

In Barnard, the threats to water quality include non-point pollution such as sediment from land development, gravel road runoff, streambank de-stabilization, invasive species, thermal modification from riparian vegetation removal and effluent from failed septic systems.

The simplest, most straightforward, and most effective means of preventing nutrient and sedimentation impacts to rivers and streams is to have buffer strips of native vegetation between any land disturbing activity and the top of the stream or river bank. The roots of the trees, shrubs and herbaceous species hold soil in place and help keep the banks stable. Woody vegetation also will help shade the rivers and streams. All the vegetation as well as the uncompacted soil and uneven topography of an undisturbed vegetation community will slow runoff, reducing its erosive force.

Goals

1. Protect water quality.

Objective

1. Protect and enhance water quality through development standards.

2. For the purpose of maintaining water quality and to control unreasonable or unnecessary adverse effects on the scenic resource of the town's surface waters, land within 50 feet of all streambanks should not be built upon and should remain as natural as possible.
3. The waters of the Ottauquechee and White Rivers and their tributaries shall be protected, managed and utilized in a manner so as to meet or exceed the water quality standards for Class B1 waters as set forth under the *Vermont Water Quality Standards*.
4. Where water quality currently exceeds the standards of Class B waters, it is not in the public interest of Barnard to knowingly degrade the quality of such waters. All new or increased discharges of wastewater into the Ottauquechee and White River and their tributaries shall not cause any degradation in water quality.
5. The Town of Barnard recognizes and seeks to maintain all creeks and brooks as a water resource for the protection and management of fish and aquatic life and for the use and benefit of the public for recreation. Land uses and development which interfere with this principle are not to be allowed.

WETLANDS

The wetland areas in Barnard are very important. They provide needed wildlife habitat by serving as feeding or breeding grounds for a select group of species. Water-associated mammals such as muskrat, beaver and raccoon, as well as certain bird species, are associated with wetland areas.

Wetland areas also provide a direct benefit as flood protection areas. In having a high organic composition, a large amount of water occurring as runoff can be absorbed and retained by these areas, thus reducing flood peaks and providing a more constant supply of water. Wetlands, because they are naturally associated with the ground water table, need protection from pollution of various kinds. Whatever is allowed to flow into wetlands may flow into the ground water. They serve also to purify ground water and thus are natural cleansers of this resource.

Vernal pools are ephemeral wetlands that fill with water in the spring and generally dry out during late summer. These pools allow for the birth of amphibians in a non-predatory environment. Vernal pools are breeding grounds for many species of amphibians, including two species of salamander currently on the Vermont list of Endangered and Threatened Species.

Goal

1. Preserve the important habitat and water quality functions of wetlands.

Objective

1. Consider the creation of wetland buffer standards in the Zoning Bylaws.
2. Development on or near vernal pools and filling or disturbing vernal pool areas is not consistent with this Plan.

Recommendations

1. Vernal pools should be retained in their natural state for provision of wildlife habitats and as retention areas for runoff.

CRITICAL WILDLIFE HABITAT

Barnard is host to some critical wildlife habitat areas defined as concentrated habitat which is identifiable by the Vermont Fish and Wildlife Department and is demonstrated as being decisive to the survival of a species of wildlife at any period in its life including breeding and migratory

periods, including but not limited to deer wintering areas, important wetlands, habitat for rare or endangered species, black bear habitat, vernal pools and wildlife corridors. Most of these areas, including Natural Heritage Sites (rare and endangered species or habitats) are located in the more undeveloped sections of Town and are mapped by State of Vermont officials.

Goal

1. Ensure critical wildlife habitat needs are met.

Objectives

1. Preserve critical wildlife habitat in sufficient quantify and location to keep the species of concern vital.
2. Preserve examples of natural communities that are rare, unique or threatened.
3. Development shall avoid impairing mapped significant natural communities and natural heritage sites.

Recommendations

1. Before allowing new structural development, consult State wildlife officials' maps to ensure the protection of deer wintering areas, bear corridors, and bobcat habitats.

IV. TRANSPORTATION

An effective transportation system is an integral part of Barnard's well-being. Barnard residents rely on a functional transportation system to commute to jobs and to access services. Barnard businesses rely on the transportation system to allow them to move products or bring tourists to the area. Ideally, this network should provide for safe and efficient through traffic and access to and from individual properties. Efficient movement and access are not the only concerns, though. Barnard's rural, undeveloped character, as evidenced by its forests, farms and miles of unpaved roads, is the reason most residents want to live here. Therefore, the character of the roads is as important as their efficiency.

The town's transportation system primarily consists of private vehicles on public roads; however, bicyclists also use these roads and there are trails for motorized (snowmobiles and ATVs) and non-motorized (cross country skiing, mountain biking, horseback riding and hiking) forms of transportation. There are no fixed-route transit, rail or air transport systems within town. Transportation by boat for any distance is minimal since there are no major rivers or lakes and the streams are too small, but people do enjoy boating on Silver Lake.

Barnard's land use planning can positively impact transportation planning priorities and costs. Additionally, development policies and Zoning Bylaws can create more incentives for cluster housing on smaller lots, reducing overall transportation costs.

Public Transportation

Rural communities like Barnard do not have the population to support a public transportation system. The exception is the school bus system where a portion of the community goes to the same places (the Barnard Academy School and Woodstock Union High School) at the same time each school day.

As a public service, the Thompson Center operates a door-to-door transportation program for seniors and disabled community members. Transportation is provided to and from the Thompson Center, medical appointments to Upper Valley providers, and shopping trips to the West Lebanon shopping district through either Stagecoach Transportation Services or volunteers coordinated by Stagecoach.

Carpooling, either by private arrangements or through Vermont Rideshare, would have the benefit of minimizing dependence on private autos. Location of a Park and Ride facility in Barnard would facilitate carpooling and such facilities are being established in other small Vermont towns. State funding for Park and Ride lots is available every year for this purpose.

The Vermonter is a passenger train line running between Washington, D.C., and St. Albans, Vermont. It stops locally in Randolph and White River Junction.

A Current and Proposed Transportation Facilities Map is provided at the end of the plan.

Barnard Roads, Trails, Culverts, and Bridges Inventory

1. Regional Highways: Vermont Route 12 is the only state highway in town and it runs north from Woodstock, through Barnard Village to its intersection with Vermont Route 107 in Bethel. This highway serves regional and State travel needs and is not a Barnard Town Highway. In the summer of 1996, Vermont Route 12 was rehabilitated and re-paved from Woodstock to Bethel. In 2012, the Annual Average Daily Traffic (AADT) was 1000 vehicles.[2] The 2010 pavement condition of Vermont Route 12 was ranked Very Poor[3]. In 2013, 5.8 miles of Vermont Route 12 between Gulf Road and Masterson Road was resurfaced.
2. Town Collector Roads: These roads serve the internal needs of traffic in Town and connect to similar roads in surrounding towns. Existing town collector roads include the Stage Road, the East Barnard Road, and the North Road. VTrans has automatic traffic counters installed on these roads[4].
    - TH#1, the Stage Road, is a Class 2 Town Highway, asphalt paved, two lanes in width for approximately one third its length, and gravel surfaced, one to two lanes in width, for its remaining distance in Barnard. The 2013 traffic count for Stage Road was 550 AADT.
    - TH#2, part of Royalton Turnpike and the East Barnard Road, is a Class 2 Town Highway, gravel surfaced except for a short paved section on a hill and one to two lanes in width. The 2012 traffic count for East Barnard Road was 110 AADT.
    - TH#3, the North Road, is a Class 2 Town Highway, asphalt paved and two lanes in width its entire length. North Road parallels Vermont Route 12 as it connects to Vermont Route 107 in Bethel. At times it is just as heavily traveled as Vermont Route 12 as it becomes an alternate route for residents (the 2013 traffic count for North Road was 610 AADT).
3. Local Town Roads: All Class 3 Town Highways are gravel surfaced except for short sections leaving other paved roads and generally not a full two lanes wide. These roads are maintained for year-round travel.
4. Class 4 Roads: These roads are not required by State statute to be maintained by the Town except for culverts and bridges. Many year-round homes, vacation/recreational homes and camps are served by these roads. Additionally, they are used for logging, farming, fire access and recreation. The mileage in the chart below only shows roads that the state currently classes as Class 4, but several additional Class 4 roads, or parts thereof, should be added to the state map.
5. Trails: Trails are not required to be maintained in any way by the Town but are public rights-of-way generally downgraded from an earlier, more extensive, but poor quality Town Highway system. They are used for logging, recreation and legal access.
6. Unmapped Town Roads: Old, disused and often difficult to define Town roads exist, though many of these have deteriorated to impassable or unrecognizable. The parcel-location mapping project has better defined these roads.

Trails and unmapped or untraveled Town roads are extensive, but not part of the measured Highway System. Mapping of the Town's roads and trails is complete and a report has been submitted to the Selectboard.

[2] *VTrans 2012 Route Log AADTs State Highway. vtransplanning.vermont.gov/research/traffic/publications*
[3] *vtrans.vermont.gov/projects/pavement*
[4] *vtransplanning.vermont.gov/sites/aot_policy/files/documents/trafficresearch/ATRStationHistory2004-2013WebSite.pdf*

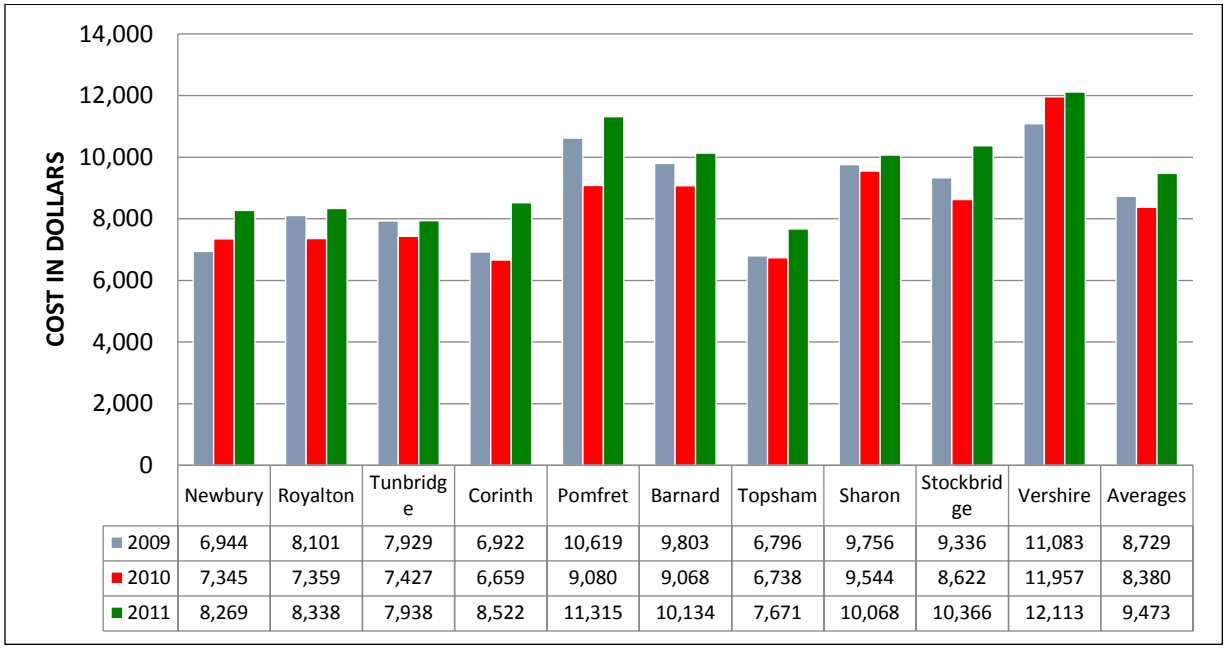
Existing Town Highway Mileage 2014[5]

Highway	Miles
State Route 12	9.62
Class 2	15.64
Class 3	42.59
Class 4	43.69
Legal Trail	2.45
TOTAL*	67,845

**Total excludes Class 4, Legal Trails*

Figure 1

Road Costs Per Mile By Town



	Newbury	Royalton	Tunbridge	Corinth	Pomfret	Barnard	Topsham	Sharon	Stockbridge	Vershire	Averages
2009	6,944	8,101	7,929	6,922	10,619	9,803	6,796	9,756	9,336	11,083	8,729
2010	7,345	7,359	7,427	6,659	9,080	9,068	6,738	9,544	8,622	11,957	8,380
2011	8,269	8,338	7,938	8,522	11,315	10,134	7,671	10,068	10,366	12,113	9,473

Figure 2

Town highway expenses are typically the second largest local expenditure after school budgets, averaging several thousand dollars per mile to maintain. In 2011, Barnard's road cost per mile was about $10,000 and the State aid provided $124,670.

[5] *Source: Vermont Agency of Transportation*

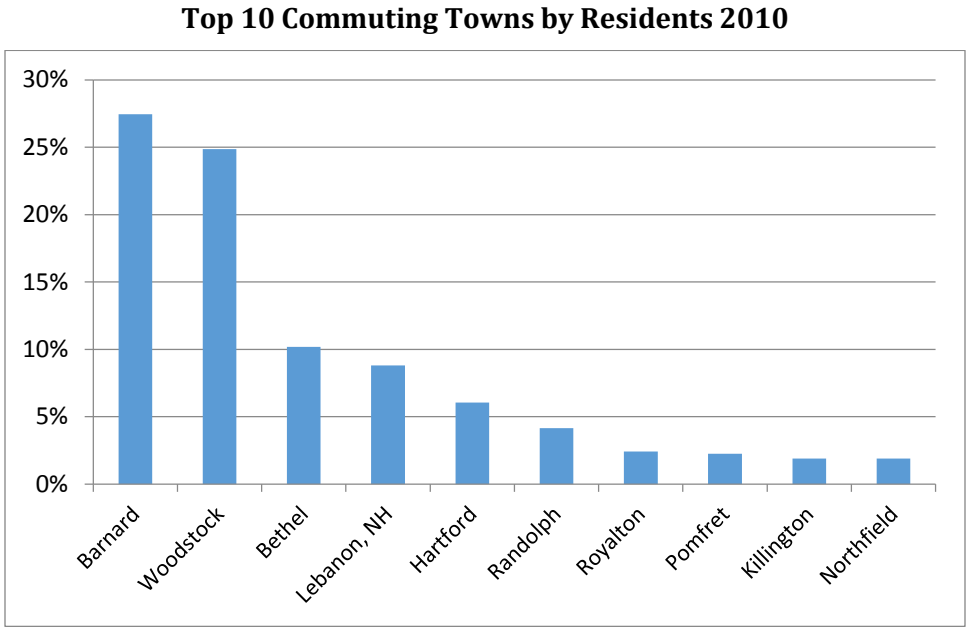


Figure 3

Based on 2010 Census data, of the 579 Barnard residents, 27% work in Barnard while 25% work in Woodstock. Considering the size and location of Barnard, it is unusual to see such a high percentage of residents work within the same town when the town is not a core community like Hartford or Lebanon, NH.

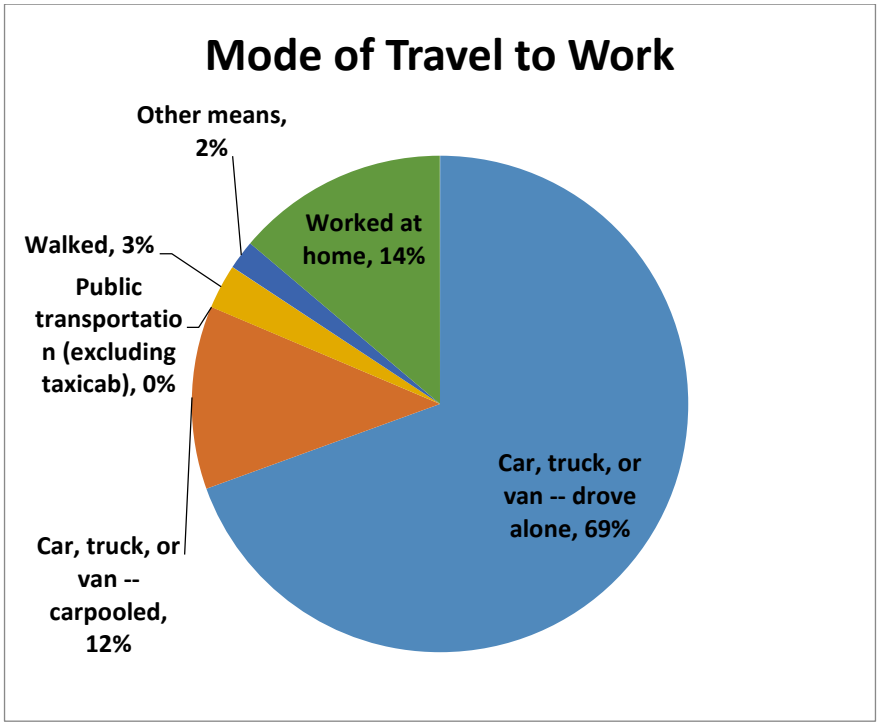


Figure 4

Not surprisingly, 69% of residents commuting to work drove by themselves, while 14% of residents worked from home.

CULVERTS AND BRIDGES

Barnard was heavily impacted by Tropical Storm Irene in 2011 with an estimate of $1 to $2 million dollars in estimated damage[6] mostly to roads and bridges. Barnard's 578 culverts were inventoried in 2015 to capture culvert upgrades since Tropical Storm Irene. At that time, 82% of the culverts were in Fair or Good condition. The Town is also making an effort to have a more resilient infrastructure network with having a minimum of 18" culverts as per the 2013 Vermont Town Road and Bridge Standards.

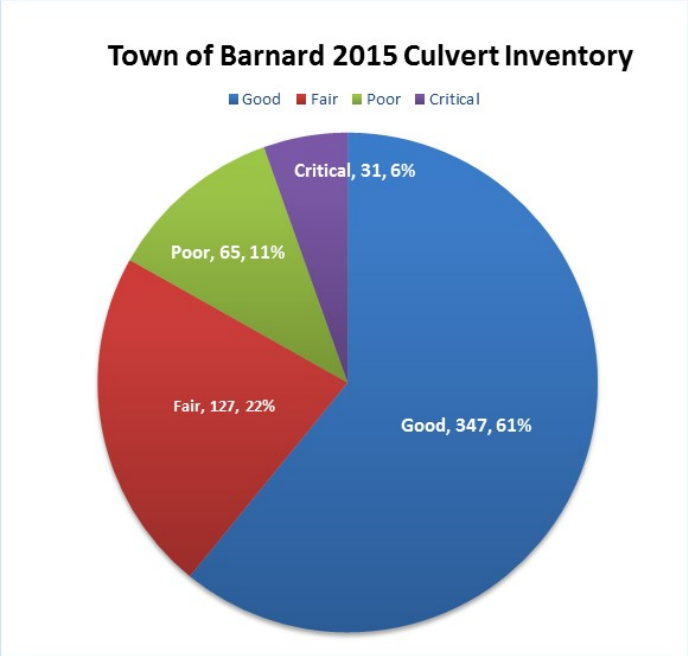


Figure 5

Barnard is also currently pursuing a $100,000 Community Development Block Grant – Disaster Recovery grant through the Vermont Community Development Program to stabilize the bank on Mount Hunger Road (see below) directly across from the Town Garage and Recycling facilities. This bank was destabilized during Tropical Storm Irene and remains a priority for the Town to address as a catastrophic bank slide will impact the Town Garage facility and create debris along Locust Creek that may impact the newly reconstructed State Bridge 25 on Vermont Route 12 that was also damaged in Tropical Storm Irene.

Figure 6: TRORC Staff 11/25/14

Barnard was severely impacted by Winter Storm Damon on December 9, 2014, which left East Barnard and other towns in the state without power and thousands of downed trees and branches blocking roads. The damage across the state warranted a Federal Disaster Declaration and the town is working through the FEMA Public Assistance Program. It is estimated that Barnard sustained $100,000 in damages.

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[6] *Vermont CDBG Disaster Recovery Action Plan July 20, 2012 - http://accd.vermont.gov/sites/accd/files/Documents/strongcommunities/cd/vcdp/Action%20Plan%20for%20Disaster%20Recovery%202012%20_%20FinalJG.pdf*

Snow shot: Photo taken by Kevin Geiger, 12/16/14

Existing Ordinances

A Town Road Ordinance currently exists and may be amended by the Selectboard as required. A Traffic Ordinance also exists to regulate speed on Town highways. At this time there is no capital improvement program for road or bridge improvements. Any upgrade of Class 4 roads to Class 3 and construction of new roads is covered by the Road Ordinance and is at the petitioner's expense. The Selectboard may not pave existing gravel roads without voters' permission.

Figure 7: TRORC Staff 12/15/14

Scenic Roads

Barnard has numerous roads that are scenic and which exhibit special qualities worth preserving or enhancing. To name a few:

- North Road
- Route 12/Prosper Rd.

Barnard residents and visitors enjoy our country roads. As development occurs along these roads, the State or the Town oftentimes sees a need to improve them. This could mean the loss of majestic trees, stonewalls, other important roadside features and once pleasant views for the sake of safety and increased carrying capacity.

Improvements that increase road width or sight distances encourage faster speeds, even if not intended to do so, and consequently may not create as much safety as imagined. It is in the interest of Barnard to prudently evaluate the relationship between road improvements for safety or ease of maintenance and the potential loss of scenery.

Access Management

One growing concern is access management - limiting access on key corridors to preserve capacity. Access management planning can forestall or prevent costly upgrading or replacement of roads and bridges and promote a more desirable and efficient land use pattern complementing the goals and planning principles set forth in this Plan. Ensuring that access points occur only in safe areas with proper slopes and adequate distances between them will preserve the function of the town highways. Through the control of the location and number of curb cuts on Barnard's collector roads and our only state road, Vermont Route 12, traffic flow can be better managed, avoiding the need for major improvements such as turning lanes. By combining access points, sharing parking and constructing interior road systems between uses, congestion can be reduced, accidents avoided and the function of these roads maintained.

Regulatory authority for access management rests with the Vermont Agency of Transportation for State highways and the Selectboard for town highways. The law (19 V.S.A. Section 1111) provides, in addition to a reasonable safe access test, that compliance be found with the Town Plan and local regulations related to land use. Therefore, use of this Plan in determining the appropriateness of new access onto a highway should be employed.

Goals

1. Promote and maintain a transportation system that is safe, efficient and complements the other goals and planning principles of this Plan.
2. Minimize transportation energy consumption.
3. Maintain the historic, scenic and rural quality of roads and trails.

Objectives

1. Maintain or improve roads, bridges and related facilities as necessary to ensure the current level of service in a manner that does not result unnecessarily in a loss of their scenic character.
2. Ensure that future development does not endanger, and enhances when possible, the public investment in the Town and regional transportation systems, including highway, bridges, bike and pedestrian facilities, public transit and trails.
3. Minimize curb cuts to ensure the proper mobility function and performance of a roadway.
4. Promote modes of transportation other than simply single-occupancy vehicles.
5. Support and coordinate land use and transportation planning initiatives at the local, regional and State levels.

Recommendations

1. Where major modifications are being proposed to a state or town road, planning should incorporate the scenic attributes of the roadway. These improvements should be designed to be compatible with the setting and enhance aesthetic quality whenever practical. Removal of roadside trees must be coordinated with the town's Tree Warden. The public shall have an opportunity to discuss proposed changes with the Agency of Transportation or the Town, as appropriate.
2. Before the Town adopts a new road or upgrades an existing Class 4 highway, the property owner(s) making the request should be responsible for the cost of improving and/or building the road to town specifications. Final decision regarding the nature of the improvement rests with the Selectboard.
3. Given the interest in and benefits from biking, hiking, snowmobiling, cross-country skiing and similar outdoor recreational activities, the Town shall retain existing Class 4 roads and trails for recreational use, or exchange for alternate routes.
4. Significant road improvements shall only be conducted at unsafe locations or on roads leading into areas where the Town desires to encourage development. By keeping remote areas less conveniently accessed, the Town is helping keep future residential and non-residential development where most appropriate.
5. Prospective developments should not only evaluate traffic impacts, but also their impacts on intermodal transportation. For example, proposed developments should consider planning for pedestrian facilities such as sidewalks or trails, bicycle paths or transit stops.
6. The town road ordinance and other bylaws should be revised to include concepts that should be employed in evaluating access for newer developments, such as:
    - Limiting the number of curb cuts per parcel or per linear feet of roadway frontage;
    - Denying direct access onto a primary road if a reasonable alternative access exists via a secondary road or shared driveway;
    - Providing for separation between curb cuts or consolidation or reconfiguring of existing curb cuts to ensure the efficiency and safety of a roadway;
    - Require shared access and parking whenever feasible;
    - Encourage use of municipal parking areas or flexible parking standards (i.e. shared parking) to reduce the amount of parking required for individual developments; and

- Requiring sidewalks or the reservation of land for future sidewalks/paths along roads in the villages and between buildings and parking areas.

7. Any plan for improvements to Route 12 should not unduly compromise the historic, scenic, rural, natural and cultural characteristics of this route. Economic development objectives or new growth creating increased demand for upgrading of this route need to be balanced with the preservation of Barnard village.
8. The Town should maintain active participation on the Regional Transportation Advisory Committee (TAC) of the Two Rivers-Ottauquechee Regional Commission.
9. A sidewalk or pedestrian/bike path should be built connecting the school and Silver Lake State Park to the village center.
10. A park and ride lot should be constructed at the Town Hall lot.
11. The road department should regularly survey and inventory Class 2 and Class 3 Town road conditions and drainage systems.
12. The Town should maintain gravel roads as opposed to paving existing gravel roads.
13. The Selectboard should discourage through truck traffic on TH#3 (the North Road) by way of weight-limit restrictions and encourage Bethel and Royalton to do the same.
14. The Selectboard should continue restricting use of uninhabited Class 4 roads and trails by motorized vehicles in mud season and in the fall to prevent abuse and erosion.
15. The town should continue to participate in regional and State sponsored initiatives that help mitigate wildlife collisions with motorists, including construction of facilities that encourage safe wildlife passage.
16. The Selectboard should amend the Road Ordinance and Traffic Ordinance to incorporate the recommendations of this Plan.
17. The Selectboard should work with the Planning Commission to establish a Policy for discontinuance of Town roads to preclude discontinuance of through roads or rights of way.
18. The Selectboard should support increased public transit opportunities for residents.
19. Any subdivision bylaws should mitigate the transportation system's influence on habitat fragmentation and natural resource degradation.

V. ENERGY

Global Context

Given clear evidence that human use of natural resources has been exceeding the carrying capacity of the Earth's life-sustaining systems since the late 1980s, combined with the likelihood that we have or will soon reach peak fossil fuel availability, it is essential that we in the developed countries take steps to conserve energy, sharply reduce greenhouse gas emissions, and transition away from reliance on fossil fuels wherever possible. This will be a defining challenge of the 21st century—an opportunity to transform systems, technologies, and behaviors in the context of sustainable economic development. Strategic global action in the next few decades may well determine whether large portions of the globe remain habitable.

State Perspective

In response to these scenarios, Vermont's 2011 Comprehensive Energy Plan (due for revision in 2015) calls for 90% of our total energy needs—for transportation, heating, and electrical power—to be drawn from renewable sources by 2050, up from 23% in 2011. The Plan also has a goal, carried forward from the 2007 Governor's Commission on Climate Change, of reducing Vermont's greenhouse gas (GHG) emissions by 50% from the 1990 baseline level by 2028, and 75% by 2050.

Importantly, factored into this Energy Plan is at least a 33% reduction in our total energy demand by 2050, to be achieved through conservation and efficiency measures. To put this into perspective, the U.S. Energy Information Administration showed that in 2009 Vermont's total energy-use is allocated in about equal thirds between transportation, residential, and commercial/industrial needs. Achieving the 33% reduction would be like removing one of those pieces entirely—leaving a smaller pie to be powered by renewable energy sources.

It is likely that the transition off of fossil fuels for heating and transportation will result in increased demand for electricity—possibly 75% more by 2050—thus creating the need to generate more electricity from renewable sources. Currently, Vermont's electricity supply is about 45% renewable, and the State hopes to raise that to 55% by 2017 and 75% by 2032.[7]

Due to these necessarily ambitious goals, Vermont is now an arena for energy innovation on many fronts, including weatherization programs, new heating and lighting technologies, energy efficient building design, and the search for appropriate sites for renewable energy generation facilities, large and small. During 2015, the Public Service Department is working with Regional Planning Commissions across the State to develop a road map for these initiatives. It behooves the residents of Barnard to be an educated and pro-active part of such planning initiatives so that we can help shape them in ways which best represent Barnard's values and priorities. The desire to transition to more sustainable energy sources should not eclipse the ongoing need to protect Vermont's beauty and natural assets.

In the context of the United States, Vermont has a small footprint—ranking 46th in energy consumption per capita and 50th in statewide CO2 emissions. Perhaps surprisingly, Massachusetts and Connecticut are on a par with Vermont in per capita consumption, and New York comes in lower still, ranking 50th. But Vermont's energy expenditure per capita is much higher than that of its neighbors, ranking 16th (at $5,041 in 2012) compared to New York's rank of 51 at $3,327.

[7] *CEP 2015 presentation by Asa Hopkins, July 9, 2015*

Vermont also has some of the oldest housing stock in the nation, suggesting that weatherization and improved home heating technologies could achieve considerable savings.[8]

While Vermont may not be the epicenter of excessive energy use, as part of the US (where 4% of the world's population uses 25% of the world's resources), the residents of Barnard have a strategic role to play in developing a global commitment to living within the means of the planet. Our very smallness, combined with traditions of frugality, independent thinking, community solidarity, and a deep connection with the land, make Vermonters particularly equipped to chart a way forward which is wise, creative, and grounded.

Barnard's Role

As a rural village with a population of less than 1000 and very limited commercial activity, Barnard itself is not a major contributor to Vermont's energy footprint. Still, there are actions the residents of Barnard can and should undertake, individually and collectively, to move toward more sustainable patterns of living. First and foremost, the residents of Barnard can choose to live more simply and lightly on the planet—just use less and waste little. Beyond this, we can weatherize existing homes and businesses, replace heating systems with more efficient equipment or systems which use renewable resources, install small-scale renewable energy generating systems (such as rooftop solar PV) wherever feasible, ensure that new buildings meet the highest energy efficiency standards, choose vehicles with fuel efficiency in mind, consolidate car trips and carpool when possible.

Energy Use Inventory

ELECTRICITY

The following chart, obtained from Efficiency Vermont, shows Barnard's Total Electricity usage for 2014, broken out by the number of households at each usage level. It reveals that while average usage is about 7,845 kwh per year, we have some outliers[9] at very high usage levels, including some 50 residential accounts that use more than 15,000 kwh per year.

[8] *2012 data from US Energy Information Administration*

[9] *Some of these "outliers" may be farms on which the residence and outbuildings share the same meter.*

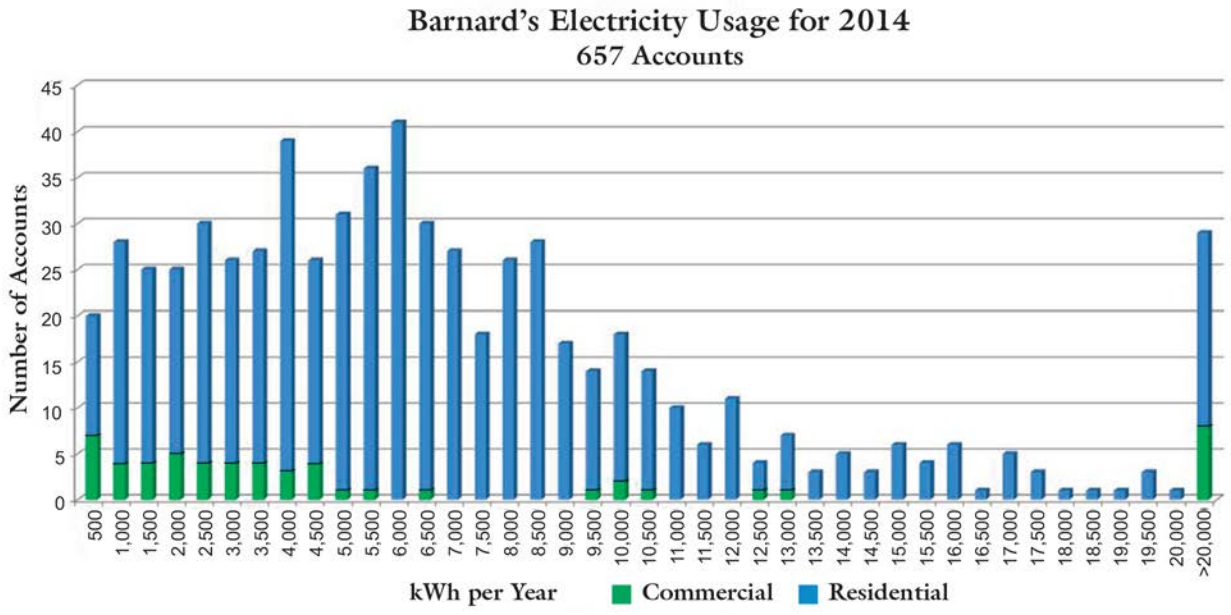

Figure 8[10]

Here are total and average consumption figures from the same dataset.

2014 Electricty Consumed	Total MWh Per year	# accounts	Average yearly kWh per account	Average monthly KWh per account
Municipal/ Commercial	791	57	13,872	1,156
Residential	4,363	600	7,273	606
TOTAL	5,154	657	7,845	654

Figure 9

Comparing column two from figure 9 with the totals from figure 10 for previous years, we can see that our overall usage appears to be dropping while Residential is holding steady.

Type	2005	2006	2007	2008	2009	2010
Commercial & Industrial Consumption	1,374	1,398	1,399	1,423	1,271	1,283
Residential Consumption	4,456	4,430	4,521	4,474	4,385	4,271
TOTAL	5,830	5,828	5,920	5,898	5,656	5,555

Figure 10

[10] *Information in tables 8 and 9 comes from Efficiency Vermont; table 10 comes from the Vermont Energy Atlas*

HEATING FUELS

According to the 2009-2013 American Community Survey, 47.5% of the housing units in Barnard heated with fuel oil, 28.3% with LP gas, and 24.3% with wood. Few, if any, households used electricity, coal or other fuel.

TRANSPORTATION

Approximately 34% of the state's total energy usage is for transportation, over half of which fuels private vehicles (as opposed to being used for public transit, road maintenance, or another public purpose). Because Barnard has predominantly dirt roads, residents often choose vehicles with greater traction and clearance yet significantly lower fuel efficiency. Pickup trucks are necessary equipment for many. Currently, Barnard is not served by any public transit, but some informal ride-sharing occurs. Commutes range from 10-50 miles, one-way.

Energy Committee Initiatives

Barnard has had an Energy Committee since 2013. The committee functions in an advisory manner to the Planning Commission and the Selectboard. To date, the Energy Committee has taken the following actions:

- Organized educational events in town.
- Replaced all street lights with LEDs.
- Replaced interior lighting in Town buildings (and possibly the School) with LEDs (ongoing).
- Researched electricity usage in Town buildings (excluding the school) and determined that rooftop solar on the proposed new Firehouse could generate enough power for the Firehouse as well as the Town Hall, Recycling Center, and Town Garage.
- Researched the PACE program (for financing weatherization and energy efficiency measures) and presented it to the Selectboard and Town Clerk for consideration.
- Facilitated discussion between the community and a developer about a controversial Community Solar array proposed for East Barnard in August 2014.
- Determined that the outflow at Silver Lake, given its current configuration, would not be a significant source of power for the Town.
- Taken steps to create an ongoing Energy Innovation Inventory for Barnard, which would document (through voluntary reporting) the energy efficient devices, conservation measures, weatherization strategies, and renewable energy generation installations currently in use throughout the Town. The Energy Committee would use this to help refer neighbors to each other for hands-on stories about how these measures are working out, and the savings they achieve.
- Drafted the Energy Chapter for the 2017 Barnard Town Plan update.

Renewable Resources

The term "renewable energy" refers to the production of electricity and fuels from energy sources that are naturally and continually replenished, such as solar power, wind, geothermal, hydropower, and various forms of biomass (trees, crops, manure, etc.). Transitioning to these alternative fuels wherever feasible will be key to our energy security in the decades ahead.

WOOD

Almost a quarter of Barnard households heat with wood.[11] The Department of Public Service has estimated that the average wood burning household in Vermont uses 3 to 4 cords of wood each year during the heating season. It is critical that local forests continue to be managed and harvested in a sustainable manner. Although significant use of wood can contribute to increased air pollution, particularly in valley areas, clean burning furnaces and stoves can mitigate this problem. Wood from managed forests is considered a renewable resource and heating with wood saves non-renewable energy sources, eliminates the use of fuel to transport sources long distances, and supports the local economy.

SOLAR

Solar "panels" are of two types: "thermal" for water heating and "photovoltaic" (PV) for electricity generation. Barnard currently has at least 11 grid-tied residential solar PV arrays totaling about 65 kw in capacity, and a handful of small off-grid arrays. Taken together, these generate about 1.5% of Barnard's residential electricity needs. According to the Vermont Energy Atlas, there are currently no solar thermal installations.

Thus, there is considerable potential for more homeowners and local businesses to convert to solar PV and/or thermal arrays, especially since prices for PV installations have dropped dramatically in the last few years. Rooftop arrays have minimal visual impact, while ground mounted systems call for sensitivity to neighboring properties and local viewsheds.

The Town and Fire Department are currently considering sharing a 27 kw array (approx. 100 panels) which could be installed on the roof of the proposed new Firehouse. The Energy Committee has determined that this array could generate enough power for the Fire Department, the Town Hall, the Recycling Center, and the Town Garage combined.

Beyond this, there may be demand in Town for one or two Community Solar arrays, provided that appropriate sites can be found. This type of array has a footprint of approximately 1.5 acres, is grid-tied, has a capacity of 150 kw or less, and can meet the needs of 20-30 households. These small community-sized arrays do not require 3-phase power access, though it is preferable.

Larger solar installations would require 5 to 50 acres of land in close proximity to three-phase power. Currently, three-phase power comes up Route 12 from Woodstock, turns right onto the Stage Road at the General Store, bears left onto the Royalton Turnpike Road and continues just to Twin Farms. The only other stretch of three-phase power begins at the substation on East Barnard Road, travels briefly eastward along the road, then travels through the woods and emerges on Broad Brook Road about a mile north of East Barnard Village. Green Mountain Power is planning to bring this stretch of three-phase power out of the woods and onto East Barnard Road in the near future. It will pass through the village of East Barnard, turn left onto Broad Brook, and continue towards Sharon.

There is a capped landfill in the Chateauguay area, about 5 acres in size, with good solar orientation, but it lies a few miles from three -phase power.[12]

[11] *2009-2013 American Community Survey.*

[12] *Three-phase power map on Green Mountain Power website*

WIND

The Vermont Energy Atlas shows that nearly two-thirds of Barnard's acreage is not suitable for Commercial-scale wind projects. Proximity to three-phase power is a requirement. It appears that, in terms of wind velocity, 8% of our acreage may be appropriate for Large Scale (70-meter) turbine projects, 9% for Small-Scale (50 meter) projects, and 3% for Residential (30 meter) projects. The siting of wind turbines raises questions about aesthetic impacts, noise, ridgeline disruption, road access, and effects on wildlife and migrating birds.

We currently have 1 off-grid residential-sized tower in a remote part of Town.

HYDRO

The Vermont Energy Atlas lists three lakes in Barnard as having potential for small hydro projects: Silver Lake, Lakota Lake, and Gray Camp Pond. The latter two are privately owned so any projects there would be at the initiative of their owners. Our recent informal tests of Silver Lake's outflow indicate that, in its current configuration, the power produced there would not be significant for municipal use.

Barnard has many streams which may be suitable for micro-hydro installations initiated by local landowners. Grid-tied hydro systems involve a lengthy and expensive federal permitting process. Until small "micro-hydro" systems are made exempt from these regulations, off-grid systems may be the best option. Recent developments in battery design increase the potential of this route.

BIOMASS

Local loggers and forestry professionals currently truck their wood waste to commercial-scale biomass facilities in Ryegate and Burlington. The Barnard Energy Committee feels that a formal feasibility study would need to be conducted to research whether an appropriately scaled facility in Barnard could be a viable option.

AGRICULTURAL

Barnard has a handful of small working farms, at least three of which use rotational grazing techniques and therefore do not produce manure or methane in the centralized manner necessary for use as "cow power."

Preferred Forms of Energy Development

Our greatest opportunities for renewable energy generation appear to be at the grassroots level: systems installed at homes, local businesses, and public buildings. Small Community Solar arrays (not to exceed 150 kw in capacity and about 1.5 acres in land use) may also be an option. Appropriate siting of these will be critical. The residents of Barnard have a preference for projects which:

- Are truly community-owned
- Are installed and maintained by local companies
- Do not involve the sale of Renewable Energy Credits.

Given Barnard's rural nature, unpaved road system, and limited access to three-phase power, the residents of Barnard currently cannot envision where new Commercial- and Utility-scale facilities would be placed.

The Public Service Board Process & Limited Local Control

All grid-tied electricity-generating systems—from utility-sized to residential—fall under the jurisdiction of the Public Service Board as delineated in 30 V.S.A. Section 248. Before any project can go forward, the Board must review an application for it and decide whether to issue it a Certificate of Public Good. Their deliberations are referred to as "Section 248 Proceedings." Note that Act 250 hearings do not apply to grid-tied energy-generation facilities and local Bylaws may not regulate their development.

However, under current law, the PSB does refer to the Town Plan as part of their deliberations. Therefore, towns should include clear, written siting and development standards that reflect municipal goals and objectives, and should consolidate these in one place for reference by developers, local property owners, and the PSB. Barnard's Siting Standards are included as Appendix B of this document.

Energy-generating facilities or systems which are not grid-tied—including small wind turbines, solar PV, solar thermal, micro-hydro, and biomass installations—are not within the jurisdiction of the PSB and may therefore be regulated by municipal bylaws. Should the municipality decide to regulate off-grid facilities, these regulations may not be more restrictive than those for grid-tied systems.

* * * * *

Goals

1. Increase energy awareness among residents and develop ongoing dialogue about energy issues, technologies, and adaptive strategies.
2. Reduce greenhouse gas emissions.
3. Begin to transition off of fossil fuels.
4. Make energy conservation and increased efficiency our primary emphasis.
5. Encourage the development of renewable energy resources while preserving to the greatest possible extent the Town's agricultural and forest assets, its rural character, and its natural beauty.

Policies

1. Given the State's goal of reducing overall energy demand by 30 percent by 2050, it is the Town's policy to encourage the adoption of conservation and efficiency measures which significantly reduce energy demand by residences, businesses, and Town buildings.
2. It is the Town's policy to contribute its fair share to the energy needs of the region by proactively planning for renewable energy generation installations in Barnard which are well-sited, appropriately-scaled, and consistent with community standards expressed elsewhere in this Plan and in the Appendix. These standards seek to preserve:
   - the town's historic and planned pattern of development,
   - our highly valued natural, cultural, and scenic resources,
   - environmentally sensitive areas,
   - public health, safety, and welfare.
3. It is the Town's policy to promote energy-efficient travel by residents by encouraging carpooling, use of public transportation, use of vehicles with high fuel efficiency, telecommuting, home businesses, biking, and walking.

4. It is the Town's policy that new municipal facilities must, where appropriate, be located within or in close proximity to the village, and, wherever possible, shall utilize existing roads.
5. The Town should work in cooperation with local agencies, emergency service providers, and regional suppliers to develop contingency plans that ensure access to critical energy supplies and reduce nonessential energy consumption in the event of an abrupt energy supply disruption, whether this disruption is the result of physical scarcity, high prices, or a severe weather event.

Recommendations

1. Develop community education, outreach and informational programs, in cooperation with other groups and organizations. Topics should include, but not be limited to: energy conservation techniques, energy-efficient products, weatherization programs, and renewable energy issues.
2. Work with local school teachers and administrators to promote energy literacy in the classroom, for example, in association with the Vermont Energy Education Program (VEEP).
3. Research and implement energy conservation and efficiency measures in Town-owned buildings.
4. Promote home energy audits, weatherization upgrades and efficiency measures. Ensure that home and business owners are aware of and have access to financing programs in support of these, such as PACE or on-bill financing with GMP.
5. Encourage adherence to the State's Residential and Commercial Building Energy Codes (RBES and CBES) as a minimum.
6. Proposed land development or subdivisions should be designed to employ advanced energy conservation & efficiency principles—such as solar orientation, roof slope, and protective wind barriers.
7. Consider enacting provisions (such as density bonuses) that encourage development in locations that best accommodate energy innovation, conservation, and efficiency measures.
8. Designate a ride-share parking area in the village center(s) to facilitate car-pooling.
9. Support enhanced service to Barnard by State and regional public transportation programs.
10. Support the development of bikeways, footpaths, and crosswalks in the village center to promote alternatives to driving.
11. To help ensure a sustainable source of fuel wood production and improvement of Barnard's forests, encourage landowners to enroll in the State's Use Value Appraisal Program.
12. Recommend that outdoor wood furnaces, if used, meet the highest efficiency and emission standards currently available.
13. Encourage solar installations on homes, businesses, and public buildings, especially roof-mounted systems, both photovoltaic and thermal. Support ground mounted systems as an alternative, provided they are sited with due respect for Barnard's Siting Standards (Appendix B).
14. Allow residential-scale wind towers, provided they meet height requirements and are sited with due respect for Barnard's Siting Standards.
15. Explore the potential for off-grid micro-hydro projects, provided they do not disrupt fish habitat.

16. Upgrades to existing utility-scale electric generation, transmission and distribution facilities, and proposals for new facilities, shall be designed, as much as possible, to have minimal visual impact and give due consideration to Barnard's Siting Standards.
17. The Planning Commission, in consultation with the Energy Committee, should ensure that Barnard's Zoning Bylaws:
    a. Permit off-grid renewable generation systems throughout town,
    b. Specify screening requirements for both off-grid and grid-tied renewable generation systems, and
    c. Encourage respect for Barnard's Siting Standards as guidelines for off-grid installations.
18. The Planning Commission, in consultation with the Energy Committee, will periodically refine the Siting Standards by:
    a. Working to map and describe Preferred Areas and Prohibited/Restricted Areas, including ridgelines, for renewable generation facilities, and
    b. Modifying these standards, if needed, to better reflect Barnard's preferences and to remain in conformance with evolving State legislation.
19. The Planning Commission and Energy Committee, in consultation with the Selectboard, will develop guidelines to direct local participation in Section 248 proceedings for the review of utility projects proposed for Barnard or neighboring communities which may affect the town. The guidelines should provide for:
    a. A community information session and discussion,
    b. An assessment of potential benefits and impacts for the community,
    c. Ways of submitting written comments for consideration in the Section 248 process, and
    d. The possibility of formal intervention by the municipality.

VI. OUTDOOR LIGHTING

This section is intended to provide guidance and standards to assist in evaluating lighting issues so that our historic villages, other areas planned for concentrated mixed use and rural areas will be better served. Increased development in the Town in recent decades has brought about a corresponding increase in the use of outdoor lighting. While increased lighting can be seen as an inevitable result of growth, excessive and unplanned lighting results in inefficient energy use, contributes to "light pollution" and affects our ability to view the night landscape, as well as creating an adverse impact on the character of our historic villages and hamlets.

With the advent of new lighting technologies, commercial enterprises, public utilities and residential development now have the ability to provide good night vision at reasonable levels that complement their immediate surroundings.

The purpose of an outdoor lighting installation should be to enhance the visibility necessary to provide lighting for a given task or need. Using a large quantity of light does not guarantee good visibility, however. Using the minimal amount of light necessary to allow adequate visibility for a site decreases sky glow and avoids escalation of light levels.

Glare is a lighting issue facing communities, including Barnard. Excessive brightness makes it difficult to see. Misdirected fixtures or unshielded lamp sources cause glare. Good visibility can often be accomplished with less light. Light that is not directed toward the ground or towards the intended surface can also shine into the viewer's eyes, impairing vision and even causing potential safety problems if near roads.

“Skyglow” is reflected light from surfaces that is visible in the night sky and is a form of "light pollution". Skyglow contributes to a loss of our ability to see stars and the natural night sky. Techniques to reduce the amount of illumination shining directly into the sky can reduce skyglow and the overall level of lighting to be used.

Goals

1. To preserve the nighttime ambiance and aesthetic qualities of the village, hillsides and night sky.
2. To conserve energy in lighting systems.

Objectives

1. Reduce sky glow and off-site effects of lighting from any large lighting installation, including minimizing the number of streetlights.
2. Promote lighting design that utilizes fixtures to reduce glare and save energy.
3. Ensure lighting plans entail good design light levels and distribution appropriate for the proposed use of the site and compatible with the character of the neighborhood.

Recommendations

1. New commercial or subdivision lighting installations shall be designed to minimize glare and skyglow, to not direct light beyond the boundaries of the area to be illuminated or onto adjacent properties, and to minimize lighting levels to that required to safely facilitate activities taking place at such locations. Use of cut-off or shielded fixtures to direct light downward or a reduction of the amount of light being generated shall be required.

2. For large projects, lighting professionals shall give due consideration to the latest *Outdoor Lighting Manual for Vermont Municipalities* (Chittenden County Regional Planning Commission.
3. Where high ambient or background lighting levels are adjacent to planned commercial uses, such levels should be considered when evaluating the need for additional lighting.
4. Lighting schemes that serve as advertising or to attract attention to these uses are not to be allowed. Excessive pole height is inconsistent with this Plan.
5. Illuminated signs may not be lit beyond the hours of operation of the business.
6. Facades should only be lit on public buildings and the use of streetlights minimized.

VII. EDUCATION

Education in Barnard has a long tradition of excellence dating back to the one-room schoolhouses. Since 1959 we have had a consolidated elementary school in the center of Town. An addition was added in the early 1970s and the school took its present shape after renovations and additions in 1990/91. The Barnard Academy, formerly called the Barnard Central School, is K-6 and our only local school. In the 2014/15 school year, 72 students were enrolled. The Barnard Academy is one of six elementary schools within the Windsor Central Supervisory Union. Middle and high school students are bused to Woodstock Union Middle and High School, which is also within the Windsor Central Supervisory Union.

The Core Knowledge program used at Barnard Academy establishes a solid foundation for academic achievement using cumulative teaching techniques and content-specific strategies that match content with student. With teachers and parents involved in the small classroom setting, Barnard Academy students do not "fall through the cracks" that larger classroom settings are more prone to. Guidance professionals and in-class teaching aides support the learning process by providing positive adult interaction for the students who need it.

Barnard Academy receives yearly grant money for supplemental educational experiences, including trips to performances through the Pentangle Arts Council and yearly trips to museums of science and living history. The Barnard Education Fund funds new technology that allows Barnard Academy students to connect with other schools, learn through online experiences, and gain exposure to the ever-changing and expanding technological world.
Assemblies, special learning classes and a variety of clubs and sports teams supplement the educational experience at Barnard Academy. Assemblies bring outside talent to the school and allow students a chance to ask questions and learn from professionals in fields like science, firefighting, or jazz. When the school day ends, students can continue to stretch their intellectual skills in the yearly spelling bee through the Windsor Supervisory Union or join the Chess Club. If they would rather stretch their legs, the school's sports teams are parent-coached and geared toward positive social interaction.

Graduates of Barnard Academy have enjoyed the support of a small school atmosphere and the benefits of a larger community. Because of the efforts of an educated and financially supportive community, Barnard Academy graduates are ready for the 21st century.

ADULT EDUCATION

Barnard has a fairly limited amount of adult education opportunities. However, Barnard's proximity to both Woodstock, Vermont and various institutions of higher education (including Dartmouth College and Vermont Technical College), provide ample opportunities for extensive adult learning activities.

BarnArts Center for the Arts, Fable Farm Dinner Theatre, the raw Shakespeare Company, all located in Barnard, and the Artistree Community Arts Center, located in neighboring Pomfret, all provide learning and workshop opportunities.

Goals

1. To ensure the educational system stays in step with the growth and development of the Town.
2. To maintain an elementary school in Town, if feasible.

Objectives

1. Maintain and enhance educational facilities for a variety of academic, athletic, social, cultural, and community activities.
2. Consider predicted population changes in planning educational decisions.

Recommendations

1. The School Board and Town should work together to encourage additional uses of the school, such as adult education and other community activities.
2. The School Board should continue to work with area schools in an effort to keep the school open while constraining costs.
3. Energy efficiency should become a part of the culture and curriculum of the school.
4. If the school closes due to too few students, the School Board and the Selectboard should work together to develop alternative uses for the building and site.

VIII. UTILITIES, FACILITIES, AND SERVICES

Capital Budgeting & Planning

State statutes enable communities to create a Capital Budget and Program (CB&P) for the purposes of planning and investing in long-range capital planning. Although most communities have some form of capital account where they save money, many do not have a Capital Budget and Program as described in state statute (24 V.S.A §4443). A capital budget outlines the capital projects that are planned to be undertaken in the coming fiscal years over a five year period. It includes estimated costs and a proposed method of financing those costs. Also outlined in the Program is an indication of priority of need and the order in which these investments will be made. Any Capital Budget and Program must be consistent with the Town Plan and shall include an analysis of what effect capital investments might have on the operating costs of the community. An adopted Capital Budget and Program must be drafted with assistance from the Planning Commission to ensure consistency with the Town Plan. While the Planning Commission is designated in statute as the "preparer" of the Capital Budget and Program, it is essential that members of the Selectboard and Budget Committee that develops the CB&P. The Selectboard has the ultimate decision as to whether or not such a budget and program is adopted. When planning for routine major facilities investments, such as roof replacements, foundation repairs, etc., it is important to also consider making energy efficiency improvements at the same time. The cost to replace or renovate a community facility will only be slightly higher if energy efficiency improvements are done at the same time, rather than on their own. Other elements that may be considered in a CB&P include investments in transportation infrastructure and upkeep, as well as municipal expenses such as information technology systems.

At present, the Town of Barnard does not have a CB&P. They do keep a builder on retainer and follow the FOF (fix or failure) method. However this plan does include recommendations to develop a CB&P.

Utilities

Utilities serving Barnard include telephone, electricity, broadband, and cable television.

ELECTRIC POWER

Green Mountain Power (GMP) is Barnard's electric service. There are camps and residences beyond the electrical grid on the west end of Smith Hill Road and the south end of Chateauguay Road. A GMP transmission line crosses the north east corner of Barnard and there is a substation in East Barnard. Three-phase power is available in some parts of town.

TELECOMMUNICATION

Landline Telephone – FairPoint Communications is Barnard's landline telephone service provider

Cellular Telephone and Internet – Cellular telephone and cellular internet (mobile wireless 4G) is currently available in less than 20% of Barnard through providers AT&T Mobility, Verizon Wireless and Sprint Nextel.

Telecommunications have become increasingly important to the security and economic needs of residents and businesses. This trend will continue, creating new opportunities for the relocation and growth of decentralized business operations and reducing demands for travel by conventional modes. With an improved telecommunications infrastructure, large amounts of information can be

conveniently moved over long distances at competitive rates. The implications for land use are significant, as this technology has enabled people to move into rural areas of the Town and to "telecommute" to other remote or central offices more readily.

Under present standards, transmission towers are the dominant telecommunications facilities. As land uses, these towers have emerged as planning concerns. To ensure adequate transmission of signals in mountainous areas, towers and related facilities prefer to be located on hilltops or high elevation points, often creating conflicts with scenic landscapes. Some of the Town's principal scenic resources are its ridgelines and mountainsides. These areas are significant contributors to the maintenance and enjoyment of rural character. These ridges are predominately undeveloped and provide an unbroken skyline viewed from the valley floor. With proper regulation, the use of ridges for telecommunication towers and related facilities can be minimized, and when done, undertaken in a manner that does not detract or adversely affect these scenic values. Protection of these areas from insensitive development is a matter of public good.

Under Vermont law (24 V.S.A. Chapter 117), municipalities may require that certain standards be met prior to the erection of telecommunication facilities. Local bylaws may regulate the use, dimension, location, and density of towers, however, Federal Communications Commission (FCC) rules are preemptive of local and State law where conflicts exist. Act 250 jurisdiction requires a permit prior to the construction of a communications tower or similar structure over 50 feet in height. Both Act 250 and local regulations are superseded if the tower is part of a network regulated by the Public Service Board. The recommendations of this section serve as a clear written community standard intended to preserve the aesthetics or scenic beauty of the Town of Barnard. Accordingly, it is the intent that this section be utilized by the District Environmental Commission, the Vermont Environmental Board, and the Public Service Board as part of their review for all wireless communications facilities.

However, as mentioned in the previous paragraph, the Town is very aware of the importance of telecommunication in general and would encourage additional transmission/cell towers to be located within its borders.

BROADBAND

Fiber Optic Broadband – ECFiber, the East Central Community Fiber-Optic Network, was formed in 2008 as a not-for-profit municipal corporation by 23 towns in Vermont, including Barnard. Barnard is currently one of ECFiber's "most covered" towns with 60% coverage and EC Fiber has plans to continue working on the project until Barnard is 100% covered.

DSL Broadband – FairPoint installed DSL Access Modules (DSLAMs) in equipment cabinets at the Barnard Town Hall parking lot and at 9495 VT Route 12 in 2013 to serve as a collection point for DSL lines that can be strung for up to 3 miles from the DSLAM. These lines are aggregated into a fiber optic network which is connected to one of FairPoint's broadband switching centers.

Satellite Broadband – Provided by companies such as Hughes Network Systems, WildBlue Communications, DISH Network and Starband, satellite internet is an option for residents who are unable to access the internet via cable or DSL provided they have a clear view of the southern sky from their location.

Facilities

Facilities are buildings or areas managed by the municipality, community, State and Federal governments or non-profit organizations that perform a governmental function.

TOWN FACILITIES

Town Hall – Originally built as the Methodist Meetinghouse in 1837, the Town Hall on 0.5 acres was purchased by the town in 1867 and the spire, belfry and pews were removed. The Town Hall contains a meeting hall with gallery, a kitchen, and the town offices. The purchase of the adjoining 4-acre Goetting lot in 2004 provides additional space for parking and may become the site of a new emergency services building. The Town Hall is available for rent to Barnard residents for events.

Town Garage – The town acquired the 1.8-acre property at 205 Chateauguay Road in 1986. The sand pile was immediately moved there in 1986, the salt shed was built in 1987, and the current 6-bay town garage was constructed in 1989. A portion of the property is in mapped floodplain (zone A).

Recycling and Transfer Station – Built in 1991 adjacent to the town garage at 157 Chateauguay Road, Barnard's recycling and transfer station includes a 3-bay garage, office, recycling bins and compactor. Barnard participates by contractual arrangement in the Alliance Solid Waste Management Program better known as the Bethel-Royalton Solid Waste Program.

Danforth Library – A free public library was first established in 1903 with a gift from Charles B. Danforth. The current library building was constructed in 1927 and is located at 6208 VT Route 12. Situated on a 0.4 acre lot backing on to Pond Brook, there is little room for parking or a septic system. In addition to the book collection, the Holway Community Room is used for community meetings.

Town Forest – This 83-acre parcel off Hayes Brook and Town Forest Roads was acquired by the Town in 1950 for back taxes. The land was used as a borrow pit and town dump until the town dump was closed and capped in 1993. It is now under active forest management in the state current use program.

Gravel Pile Lot – This 1.8 acre parcel off Chateauguay Road was donated to the town in 1958 and is currently used for gravel and culvert storage. It was in use at the time of the donation in 1958 as a town dump.

Hunton Lot – This 0.27 acre parcel off the unmaintained Charles French Road (TH 90) was acquired by the town in 1970. The parcel originated as a reservation in a 1907 deed described as "except the house in the upper corner and the land fenced in the same."

Recreation Fields – Town-built recreational facilities include the tennis courts and basketball court beside the elementary school and the ball field behind it. Those facilities are managed by the Town's Recreational Committee. In winter, thanks to those who plow and set up the boards, a portion of Silver Lake becomes an ice hockey rink.

STATE FACILITIES

Silver Lake State Park – This 116-acre jewel in the Vermont State Park system was established in 1955. Central to the park is a beach with a large grassy area, food concession, rest rooms, changing rooms, and boat and canoe rentals. The park has 40 tent/trailer sites and 7 lean-to sites and two rest rooms in the camping area with running water and hot showers. There is also an open pavilion for rent that can seat up to 100 people and has 2 group grills and picnic tables.

Les Newell Wildlife Management Area – Acquired by the State of Vermont in 1958 and managed by the Vermont Fish & Wildlife Department, the Les Newell WMA is open to snowmobilers, horseback riders, hunters, trappers, birdwatchers, and other people who take pleasure in recreating in remote forest settings. Of the 7,988 total acres in the Les Newell WMA, 3,138 acres are in Barnard. The timber rights on the WMA are owned by the A. Johnson Company.

FEDERAL FACILITIES

Barnard Post Office – A post office was first established in Barnard Village in 1830. The current Barnard post office (05031) is located in leased space at 6430 Stage Road. The Barnard post office provides postal services 6 days a week and delivers mail to rented post office boxes. Home deliveries of mail in Barnard are made through the Bethel (05032), South Royalton (05068) and Woodstock (05091) post offices.

Appalachian National Scenic Trail – Following federal legislation in 1978 to protect the Appalachian Trail (AT), one mile of the 2160-mile footpath was relocated into Barnard where it crosses state Les Newell WMA lands. An additional 41 acres of land were federally acquired to protect the AT in Barnard. Through the Chateauguay-No Town Conservation Project 160 more acres of land came into federal ownership in 2013. The AT in Barnard is maintained by the Green Mountain Club and federally owned AT lands are managed by the Green Mountain National Forest. The Lookout, located on a short blue-blazed side trail, is in Barnard.

SCHOOLS

Barnard Academy – As Barnard's central elementary school, the Barnard Academy building at 5979 VT Route 12 dates to 1959 and was significantly expanded and remodeled in 1991. Barnard Academy is sited on 7.6 acres of land, about half of which is forested. The building and land are owned by the Barnard Town School District and governed by an elected School Board. The Barnard Recreation Area is situated on school property.

BEES (Barnard Educational Endeavor Society) – The BEES are a society of parents, teachers, and community members who plan events for the children, organize teacher appreciation efforts, and provide support for student academic and extracurricular experiences. The BEES acronym was chosen by the society in 1990 as a reminder of the role Barnard Academy played in making the honeybee the state insect.

Barnard Educational Fund (BEF) – Established in 2000 in an effort to generate grant money for support of Arts and Cultural enrichment at Barnard Academy, the Barnard Educational Fund's annual solicitation raises roughly $10,000 each year. The Barnard Educational Fund is an independent public benefit corporation governed by a volunteer Board of Trustees.

Barnard Academy Farm to School Program – Founded in 2010 by volunteers, the Farm to School Program works with children to plant a vegetable garden on school property, makes locally grown

fresh foods available for snacks and at lunch time, and provides curriculum support on food and nutrition.

Cultural and Recreational Facilities

Recreation in Barnard has traditionally been closely tied to the land. Hills, woods, fields, valleys, streams and ponds offer opportunities for many kinds of recreation - bicycling, picnicking, snowmobiling, hiking, hunting, and swimming. Silver Lake has always been a year round magnet for both townspeople and visitors for swimming, boating, fishing, skating and more. The preservation of Silver Lake is one of the highest priorities of the Town.

Town-built recreational facilities include the tennis courts and basketball court beside the elementary school and the ball field behind it. Those facilities are managed by the Town's Recreational Committee. In winter, thanks to those who plow and set up the boards, a portion of Silver Lake becomes an ice hockey rink.

Residents and home-grown efforts have brought culture and recreation to the Town over the years. Barnard is (or has been) the home of writers, artists and musicians who share their gifts and enrich the life of the Town. Plays, variety shows, dances, concerts, fairs, parades and Silver Lake Days have all served to bring people together for culture and recreation. For more diverse or professional events, the Town has relied, and continues to rely, on surrounding towns that offer excellent cultural and recreational opportunities.

Facilities used for cultural activities offered by townspeople or recruited from outside Barnard have included the Barnard Town Hall, the East Barnard Community Club Hall, the Barnard Academy (formerly known as the Barnard Central School), Danforth Library and the Barnard Historical Society. Facilities available within 30 miles include theaters, movies, concert halls, museums and art galleries.

COMMUNITY PLACES

Dorothy Thompson Memorial Common – Established in 2001, the 3-acre Common offers an open space in the center of Barnard where residents and visitors can stroll, relax and enjoy the view of the lake. During the winter, the Common is used for sledding and tobogganing and affords snowmobilers access to the lake. The Sinclair Lewis sugar house is situated on the Common. The Barnard Silver Lake Association owns and maintains the Common.

Silver Lake – This magnificent 84-acre lake at the center of Barnard village has been rated as one of Vermont's cleanest lakes, despite the many cottages along its shore, thanks in part to the efforts of the Barnard Silver Lake Association. Over half of the lakeshore is protected by Silver Lake State Park and Vermont Land Trust easements. The lake is popular for swimming, fishing, paddling and quieter recreation with motor vessels limited to 5 miles per hour by the Vermont Water Resources Panel.

Barnard General Store – In continuous operation since 1832, the Barnard General Store on the shores of Silver Lake (6130 VT Route 12) is at the heart of the Barnard community. Faced with the store's closure in 2012, the Barnard Community Trust raised the necessary funds to acquire the

store and 1.25 acres of land in 2013. The store is now owned by the Barnard Community Trust and leased to local operators.

The Beach at Silver Lake – With the purchase of the 1.25 acres Barnard General Store property by the Barnard Community Trust in 2013 came with a sliver of land between Stage Road and Silver Lake known as "The Beach." The Beach is a pocket park with a flagpole, signboard, war memorial, historic monument, picnic tables and a sandy area for swimming.

Silver Lake Dam – The dam at the outlet of Silver Lake was purchased together with 0.6 acres by the State of Vermont in 1968. With the support of federal Land and Water Conservation Fund (LWCF) grants the dam was reconstructed in 1968, renovated in 1983 and improved in 1988. Further repairs to the dam were made by the state in 2010. North Road crosses over the top of the dam.

Barnard Recreation Area – Through two federal Land and Water Conservation Fund (LWCF) grants in 1976 and 1980, the Barnard Recreation Area was established on 4 acres adjacent to Barnard Academy and owned by the Barnard Town School District. Developed facilities include two tennis courts, a ball field, playing fields, lighting and parking.

Clark Farm – The site of the weekly summer season Feast and Field Farmer's Market, the Fable Farm Dinner Theatre, and several local farm enterprises, the 483-acre Clark Farm was acquired by the Vermont Land Trust in 2012 following an extraordinary community fundraising effort by the Barnard Conservation Commission.

East Barnard Community Hall – Originally a cheese factory, the East Barnard Community Hall was purchased by the East Barnard Grange in 1908 and served as their meeting house until 1984 when it was conveyed to the East Barnard Community Club. The Community Hall is situated on 0.8 acres at a bend in Broad Brook known as "The Harbor."

The Lookout – The first observation tower on 2,460-foot Lookout Mountain was built by the Luce family in 1894. It was replaced by a used steel power transmission tower in 1955 and by a wooden cabin with an observation deck on the roof in 1985. The tower site is accessible by a short side trail from the Appalachian Trail but is on privately owned land.

Wesbrook Woods – Donated to the New England Forestry Foundation in 1990, this 12-acre preserve has 1600 feet of frontage on Broad Brook.

Hawk's Hill Demonstration Forest – Donated to the New England Forestry Foundation in 1963, this 188 acre demonstration forest was the second Tree Farm established in Vermont. The forest is located at one end of the 10 mile long Skyline cross-country Trail. A brook and three ponds are available for fishing.

Lakota Lake – The Lakota Club, chartered in 1891 "for the purpose of establishing and maintaining a private park" is a private trout club with clubhouse on 20-acre Lakota Lake and surrounded by 774 acres of land. Although not open to the public, it is adjacent to the Appalachian National Scenic Trail National and offers important scenic and wildlife values.

Fort Defiance Site – A monument at 8825 VT Route 12 states, "Near this spot stood Fort Defiance built after the Barnard Indian Raid of August 9, 1780 … The fort was built around Amos Bicknell's log cabin by Capt. Benjamin Cox of Barnard and his company of militia, being commenced on August

13, completed before September 21, and christened on November 2, 1780." The former location of Fort Defiance is on private property.

Services

Services may or may not have a physical presence in town, but serve the town's residents in an important way.

EMERGENCY SERVICES

Barnard Volunteer Fire Department – The Barnard Volunteer Fire Department, Inc. and Barnard Fire Station were established in 1956. The current firehouse sits on a 0.22 acre parcel of land in Barnard Village at 6620 VT Route 12 and is very cramped. The site has become too small to accommodate modern firefighting equipment along with the Barnard First Response Squad. A non-binding vote at 2014 Town Meeting conceptually approved construction of a new emergency services building on the Goetting Lot adjacent to the Town Hall.

Broad Brook Volunteer Fire Department **–** The Broad Brook Volunteer Fire Association, Inc. and Broad Brook Fire Station were established in 1955. The current firehouse sits on a one acre parcel of land at 4418 Broad Brook Road in East Barnard. The firehouse was renovated in 2013 to be more energy efficient, accommodate larger equipment, and create a meeting/training room.

Barnard First Response **–** Volunteers with Barnard First Response provide intermediate-level emergency medical services prior to the arrival of an ambulance from White River Valley Ambulance.

Ambulance **–** Barnard contracts with White River Valley Ambulance, a non-profit paramedic-level service located at 3190 Pleasant Street (VT Route 12) in Bethel.

Police – General law enforcement is provided by the Vermont State Police, Troop D, Royalton Barracks, located at 2011 VT Route 107 in Bethel. The town contracts with the Windsor County Sheriff's Department located at 62 Pleasant Street (US Route 4) in Woodstock for speed enforcement. Barnard's constables are used primarily for animal enforcement and security at events.

Helipad **–** Following approval from the State Transportation Board in 2013, a private residential helipad with a concrete landing surface and aviation lighting system was constructed on Montsalvat Farm at 1907 North Road. This landing site is available for emergency use.

CHILD CARE

The **Barnard Academy Pre-K Program** is currently the only licensed child care provider in Barnard.

Community Organizations

Barnard Community Trust **–** Formed in 2009 as a non-profit organization committed to finding a way to save the much loved and much needed Barnard General Store, the Barnard Community Trust raised the funds necessary to purchase and reopen the store in 2013. The larger mission of the Trust is to promote and enable the town to maintain and enhance its rural quality of life in a positive and sustainable way.

Barnard Helping Hands **–** Barnard Helping Hands was founded in 2005 as a non-profit organization to enable an ever-expanding circle of Barnard neighbors to reach out to connect members of the community with each other by matching the skills of our community with its needs. The vision of Helping Hands is to help people in physical, financial or emotional need.

Barnard Historical Society – Founded in 1977, the mission of the Barnard Historical Society is to preserve the history of Barnard and its families. The Barnard Historical Society owns the former Village School, a one-room school house dating to 1850, which it maintains as a museum with a complete genealogy section and many artifacts from Barnard's early agricultural days. The sugar house located on the Dorothy Thompson Common is maintained as symbol of the life of Sinclair Lewis.

Barnard Mountain Viewers Snowmobile Club **–** Incorporated in 1983, the nonprofit Mountain Viewers Club works with the state, town, Vermont Association of Snow Travelers (VAST) and private land owners to maintain a 47-mile recreational trail system within Barnard which provides continuity to the statewide VAST trail system. In addition to snowmobiling the Club encourages winter non-motorized use of the trail system such as walking, snowshoeing and cross country skiing where acceptable to private landowners.

Barnard Silver Lake Association **–** Following a serious algae bloom on Silver Lake in the summer of 1983, a group of concerned citizens joined by many vacation home owners formed the Barnard Silver Lake Association (BSLA). The Association provides ongoing monitoring of water quality of and the activities of home and camp owners on Silver Lake.

Camp Red Clover **–** Founded in 2007, Camp Red Clover is a day camp with a focus on hands-on learning in the arts and outdoor education. Two sessions are currently offered for children aged 6-12 in July.

East Barnard Community Club **–** The East Barnard Community Club was organized in 1930 to support the East Barnard Church, East Barnard Grange (disbanded in 1991) and Broad Brook Volunteer Fire Association. The Community Club provides the Luna Moore Scholarship Fund and operates the East Barnard Community Hall which it acquired from the East Barnard Grange in 1984.

Silver Lake Progressive Club – Organized in the 1927 as the Ladies Farm Bureau Club, the Silver Lake Progressive Club provides lunch at March town meeting and donates all funds raised toward college scholarships for Barnard residents. The Progressive Club also maintains the garden in town on the median, and the flowerbeds and boxes at the town hall.

COMMUNITY NETWORKING

Barnard Bulletin **–** The first edition of the Barnard Bulletin was mailed to Barnard residents in April of 1986 with the intent to keep the electorate informed of the issues and events in Barnard. Today the Bulletin is mailed free of charge to 342 residents each month. The Bulletin is mailed to thirty paid subscribers, and seventeen readers get the Bulletin online.

East Barnard Village Crier – Started in 2006 as an e-group for the East Barnard Community Club, the Crier has expanded to over 100 households. It serves as a 21st century version of the old fashioned party line – keeping people informed and connected by sharing births, deaths, marriages,

hospitalizations and other news, announcing local events, and being a voice for East Barnard. Crier messages are funneled through a volunteer operator and sent out as they come in with no set schedule.

Barnard@Lists.Valley.Net **–** Launched in 2011, Barnard@Lists is an email discussion list with approximately 400 subscribers providing an email discussion forum for topics specific to the Barnard. It is not an 'official' list set up by the town government. Residents are encouraged to subscribe and post; non-residents may subscribe, but are asked not to post.

COMMUNITY ARTS

BarnArts Center for the Arts – Founded in 2012, the mission of BarnArts is to engage and inspire the local community through a year-round performing and visual arts program of workshops, exhibitions and performances, showcasing both the existing and developing talents of local adults and children as well as nationally recognized artists. Performances are held at the Barnard Town Hall (115 North Road) and at the First Universalist Church and Society of Barnard (6211 VT Route 12).

Fable Farm Dinner Theatre - For years, Fable Farm has hosted artists, farmers and students, who have come to the farm to unplug, reconnect, heal, and get their hands dirty. With the development of Fable Farm Dinner Theatre in 2012, Fable Farm established their Artists in Residence Program that provides opportunities for actors, directors, and designers to engage in a dinner theatre production while living on a farm and connecting with the land. Outdoor dinner theatre performances are held at the Clark Farm.

raw Shakespeare Company – In 2013 a group of local residents started up a Shakespeare troupe named the raw Shakespeare Company dedicated to studying and performing the bard's works with an emphasis on the words. The troupe concentrates on the diverse meanings and references with the aim of deepening our appreciation of life. Performances and workshops are held in various venues in Barnard and surrounding towns.

HISTORIC INNS AND LODGING

Twin Farms Resort – This secluded, exclusive five-star hideaway (452 Royalton Turnpike) was once the home of Nobel prize-winning author Sinclair Lewis and journalist Dorothy Thompson and offers one of the most uniquely luxurious lodging experiences in America. Accommodations include ten free-standing cottages, the Farmhouse, the Lodge, and rooms in the Main House. Twin Farms is available for retreats, weddings and other gatherings.

Barnard Inn Restaurant – A 1796 brick Federal style farmhouse nestled amongst maple trees, perennial gardens and rolling hills in Barnard village (5518 VT Route 12), the Barnard Inn is the quintessential Vermont dining and wedding destination. No overnight accommodations are offered.

Maple Leaf Inn **–** A Victorian style farmhouse nestled into maple and birch woods in Barnard village (5890 VT Route 12), this Bed &Breakfast has seven luxurious rooms each with a private bath.

Inn at Chelsea Farm **–** A cape style Bed & Breakfast set amid formal gardens in Barnard village (5723 VT Route 12), the Inn at Chelsea Farm has three luxurious rooms each with a private bath.

The Fan House **–** Once the home of Vermont's first female lawyer, this circa 1840 Bed & Breakfast in Barnard village (6297 VT Route 12) has three luxurious rooms each with a private bath.

Vacation Rental Homes – According to popular vacation rental websites, between 10 and 12 homes in Barnard are generally listed as available for vacation rentals.

CHURCHES

First Universalist Church and Society – Organized in 1802, the current High Greek Revival Style structure (located at 6211 VT Route 12) was constructed in 1845 and entered on the Vermont State Register of Historical Places in 1977. The church may be rented for events and frequently hosts BarnArts Center for the Arts concerts and performances.

Silver Lake Chapel – Constructed in the 1844 as a Congregational church and sold to the Methodists in 1864, the church was reopened as Silver Lake Chapel in 1953 and acquired by the Trustees of Silver Lake Chapel in 1957. The church (located at 156 North Road) underwent extensive foundation and sill work in 1987. There is a large meeting room and kitchen in the basement.

East Barnard Community Church – Constructed in 1834 by the Broad Brook Union Society, the church was reorganized in 1968 as an independent non-profit corporation known as East Barnard Church, Inc. The church (located at 25 Allen Hill Road) may be rented for events year-round but has no restroom or water. A restroom and kitchen is available at the East Barnard Community Hall across the road.

CEMETERIES

Town Cemeteries include the Ashley, Methodist, Nye, Village, Perkins, East Barnard, Smith Hill, South Barnard, Windward and Silver Lake cemeteries. Private cemeteries in town are the Chamberlain, Boyden, Moore and Eastman Road cemeteries.

Goals

1. Preserve the rural character and appearance of the Town.
2. Protect the scenic, historic, environmental, and natural resources of the Town.
3. Growth and development shall not exceed the capacity of local and regional facilities and services.
4. Ensure Barnard residents have access to fast and reliable telecommunications and reliable utilities.
5. Continue to provide well-maintained community facilities and services to area residents and visitors in a manner consistent with our rural nature.
6. Provide access to diversified cultural and recreational opportunities for area residents and visitors of all ages.
7. Enable the residents of Barnard to have access to a broad range of health and human services.

Objectives

1. Any expansion of infrastructure by the Town, State or other entity shall be made so as to support development in the villages and other designated growth areas and to discourage strip development or sprawl.
2. Facilitate telecommunication services while minimizing the adverse visual effects of towers and related facilities by providing specific recommendations for design and siting standards.
3. Increase community awareness of where and how emergency services can be obtained.

4. Encourage and honor community participation in local recreational and cultural events.
5. Continue support of local emergency services.
6. Continue to have sufficient providers of health and human services.

Recommendations

1. Short- and long-term management plans should be developed for each public structure in town.
    a. The Selectboard and related organizations should budget to replace and update emergency buildings, vehicles and equipment as needed.
2. Identify private cemeteries and protect these sites. Once private cemeteries are identified, landowners should be encouraged to contact the Vermont Old Cemetery Association about preserving a privately owned cemetery.
3. The Town should continue to support the existence of a U.S. Post Office in Barnard village.
4. The Town should provide input to Green Mountain Power on placing or replacing utility lines.
5. Power and telecommunication companies shall avoid construction of additional power and phone lines in the Chateauguay No-Town Conservation Area.
6. Towers for wireless service providers and/or broadband shall be required to allow other providers to co-locate on their facilities when feasible, subject to reasonable terms and conditions.
7. To minimize conflicts with scenic values, telecommunication tower design and construction shall follow these guidelines, whenever possible:
    a. Be located in non-residential areas and away from visually sensitive areas, prominent scenic areas and historic areas;
    b. Be located in forested areas when possible, or camouflaged on buildings;
    c. Be sufficiently landscaped to screen related ground fixtures from public vantage points, such as trails, roads or water bodies;
    d. Utilize materials, forms (including asymmetrical tree shapes), color schemes, mass, minimal height and other design elements to promote aesthetic compatibility with surrounding uses and to avoid adverse visual impacts;
    e. Where construction of access roads is involved, it should be situated to generally follow the contour of the land and to avoid open fields or meadows to minimize its visibility;
    f. Towers should not be illuminated by artificial means and not display strobe lights, except when required by the FAA;
    g. Towers shall avoid breaking the silhouette of peaks and ridges by locating downslope whenever feasible, and be sited in areas minimally visible to the traveling public, Silver Lake and the Appalachian Trail; and
    h. The height for towers, antennae and tower-related fixtures shall be as close to mature tree height as possible while still achieving the coverage objective.
    i. In planning for telecommunication facilities, due consideration should be given to the environmental limitations of any given site. Impacts of the use on wildlife habitats, soil erosion, forestry and agricultural lands and similar resources should be carefully addressed. Projects that materially impact these resources are discouraged.
    The design plans for telecommunication projects situated on lands owned by the State shall be compatible with current Management Plans for Public Lands adopted by the Agency of Natural Resources.
    j. Towers, antennae and related fixtures that fall into disuse or are discontinued shall be removed. Local and State land use permits shall incorporate removal of inactive fixtures as a condition of approval.

8. Continue town support of the Recreation Committee, including the use of town buildings for functions.
9. Residents and local groups should work with area cultural organizations to continue cultural offerings in or near Barnard and to make transportation available for cultural events outside of Town.
10. The Town should continue to work with the Barnard Silver Lake Association and the State in their efforts to preserve the Lake.
11. The Selectboard should provide information regarding the availability of community services to the residents of Barnard.
12. The Town should support the appropriation requests from social service agencies that provide in-home health services.
13. Working with neighboring communities' joint efforts, the Town should support private sector efforts to develop affordable, quality child care as needed.

IX. ECONOMIC DEVELOPMENT

Barnard, like many small communities, has little commercial and industrial activity and depends mainly on real estate taxes from property for its tax base. Residents may be occupied in agriculture or forestry production, home businesses, construction, seasonal businesses, commerce or industry outside of the community. Economic planning should focus on protection of natural resources, home businesses and farm-related businesses.

Economic Conditions: [13]

- The median age is higher in Barnard than the state as a whole.
- Median household income is higher in Barnard than the state, as is per capita income.
- The median value of owner-occupied units is higher in Barnard than in the state.
- Unemployment in Barnard is higher than in the state.
- Household size is slightly less than the state's average.
- Barnard has less residents whose income is below the poverty level than the state.
- Few building permits have been issued in recent years.
- Like some other towns in the region (and Vermont), Barnard is losing population.

	Barnard	Vermont
Median Age	48.8	41.5
Median household income	$59,483	$54,267
Per Capita income	$32,106	$29,167
Median value of owner-occupied units	$334,100	$216,800
Unemployment as of April 2015*	4.1%	3.7%
Average household size	2.29	2.34
Residents with income below the poverty level	6.7%	7.6%

Figure 11

[13] *Unless otherwise noted, data in this section was taken from the 2009-2013 American Community Survey, a 5-year estimate survey conducted by the U.S. Census.*

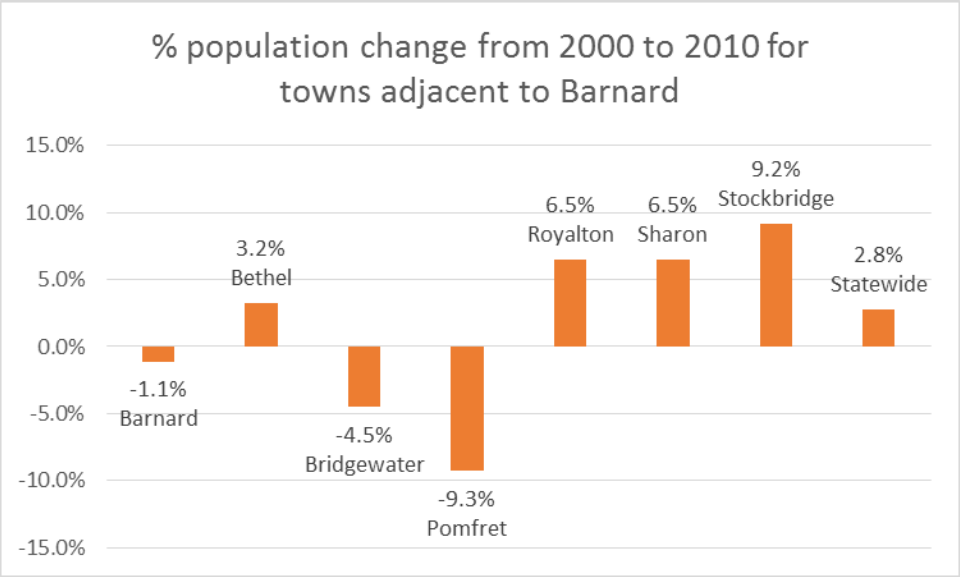

Figure 12

The 2009-2013 American Community Survey 5-Year Estimates (ACS) reported that 459 residents were employed; 68.7% percent worked in the private sector, 12.4% worked in the public sector, and 16.8% were self-employed. Residents commuted to work in the following ways: 71.3% drove alone to work, 10.7% carpooled,, 4.4% walked,, 3.1% found other means of travel, and 10.4% worked from home. The mean travel time to work for Barnard's workers was 28.3 minutes.

Barnard's primary economic in-town activity consists of home businesses. According to the 2009-2013 ACS, 47 residents of Barnard used a portion of their home or property for business purposes. In addition to home occupations, the zoning allows Home Business I, Home Business II Conditional, and Commercial. Service businesses represent an important segment of the economic makeup of Barnard. These businesses offer services to residents, provide local employment and add to the tax base. The Town recognizes this and supports regulations that encourage such activity.

Many enterprises undertaken by Barnard residents require outside storage of equipment and materials. Service-oriented businesses such as contractors, earth movers, masons and property managers, and the storage of equipment and materials particular to their service, exist throughout Town and thus are considered an existing element of the character of Barnard. Nonetheless, the Town should strive to balance its rural character with the economic and business needs of residents. Thus, when applied to Zoning Bylaws regulations, such business enterprises should be reviewed for conditional use approval.

The establishment and operation of small entrepreneurial enterprises are consistent with the general purposes of the Town Plan, provided that their size, type, appearance and setting do not significantly or unnecessarily detract from the rural character of the Town. These enterprises should not cause any undue burden on the ability of the Town to provide services, such as highways, fire protection and ambulance service.

Goal

1. To allow moderate economic growth that is consistent with Barnard's rural identity, while preserving our natural resources, home businesses, and farm-related businesses.

Objectives

1. Maintain the health and vitality of the Town's home occupations and services businesses.
2. Encourage economic growth through the creation and expansion of light industries, recreational activities and professions which enhance the rural nature of the Town.
3. Encourage the continued operations of agriculture and forestry, and recreational enterprises and that add value to these land-based products.
4. Protect natural resources and the rural character of Barnard while allowing service businesses and farm-related businesses to prosper.

Recommendations

1. Survey the community (or hold a public meeting) to gain input and build consensus on the economic future of Barnard.
2. Promote and encourage businesses that add value to farm or forest products, or that are based on our rural nature and natural resources.
3. Encourage farmers and forestry professionals to be active members in local decision-making roles.
4. Provide a list of economic resources on the Barnard website, particularly those that might enhance agricultural and forestry opportunities.
5. Retain the existing commercial areas in future zoning bylaws at the locations that are the existing commercial areas. The permitted and conditional uses allowed in the Rural, Forest and Farmlands Area shall also be allowed in the Commercial Area.
6. The Town should apply for state-designation as a Village Center, to receive priority consideration for state grants and other resources.
7. Continue to encourage and support the expansion of Digital Subscriber Lines (DSL).
8. The Town may want to investigate ways to change zoning to allow for and promote diversified agriculture.
9. Encourage landowners to enroll in the State’s Use Value Appraisal Program to ensure a sustainable source of fuel wood production and improvement of Barnard’s forests at a reasonable rate of return.

X. HOUSING

Barnard, once a logging and farming community, is now a year-round bedroom community for larger, surrounding employment centers including Woodstock, Bethel, Randolph, Hartford, Hanover and Lebanon. 89% of workers in Barnard worked outside the home with an average commute of 28 minutes (2009-2013 ACS 5-year Estimates[14]). Barnard experiences a sizable increase in summer population, due in part to Silver Lake.

According to the 2010 Census, the population of Barnard was 947, down from 958 in 2000. There were a total of 716 housing units as of 2010 (US Census). There were 413 occupied units, and 268 seasonal and vacation residences (37% of the total units). This is a high percentage of seasonal units; the county and state percentages of seasonal units are 22% and 16% respectively. Of the 413 occupied units, 18% were renter occupied, much lower than the 28% and 29% renter occupancy figures for the county and state.

According to the US Census, there were only 5 vacant units available for rent and 13 for sale in 2010, giving a 5% vacancy rate for the housing market. A healthy housing market is generally considered to need a 5% vacancy rate. .

The overall market price for homes is high in Barnard and these market prices will continue to change the socio-economic mix in the Town. The ACS data reported the median value of primary residences in Barnard to be $334,100[15]. For comparison, the median prices for all housing in both Windsor County and Vermont were nearly $118,000 less ($216,300 and $216,800). Still, with median family income $70,417, the median house in Barnard represented only 4.74 years of income.

The median price of primary residences sold in Barnard in 2014 was $108,000 for the nine houses sold (VT Housing Data). The average (mean) price for a home in 2014 was $160,624. The median price of vacation residences sold in 2014 was $643,065 for the three houses sold, with the average (mean) price $488,355.

Housing growth is quite small in Barnard. According to Vermont Housing Data, over the past decade (2004-2014) there was an average of 2.8 dwelling units built per year, (however, 2004 appears to be a precession anomaly, in that it appears that 15 houses were built that year. If we drop 2004, the average is 1.4)

Land use regulations can have a negative effect on affordability of homes, mainly through reducing possible supply by limiting the area where homes can be built, requiring very large lots, or incorporating strict design control. Barnard's current Zoning Bylaws have none of these issues. Nearly all of the town is currently zoned Rural Residential and there is no design control; therefore, there are literally thousands of potential home sites remaining in Barnard under these regulations. "Accessory dwelling units" (a single bedroom apartment) are allowed by law whenever a house is allowed provided there is sufficient room to build the unit and it will meet all parking and septic rules.

[14] *Unless otherwise noted, all updated data in this section is from the 2009-2013 American Community Survey 5-Year Estimates.*

[15] *The drastic difference between the 2000 Census and the 2009-2013 ACS data with regard to the median value of primary residences may be due to the fact that ACS data only samples a small percentage of residents.*

Multi-unit dwellings are allowed as a conditional use in the Rural Residential district as well. Allowing for the construction of multi-family dwellings lowers housing costs and allows young people, young families, single-parent families and elders to enter or remain in communities in which they have ties or desire to put down roots. There is no restriction on any type of manufactured housing.

Affordable housing is an issue in Barnard because of three main factors: there are limited sites with good soils for on-site septic disposal, often resulting in much more expensive mound systems; the cost of accessible land is high, partly driven by few sales of land and partly by the price sellers are able to get; and there are very few modest homes being constructed. Creating more affordable homes in town will likely take action by the Town or non-profits.

Goals

1. To promote sufficient availability of decent and affordable primary housing for residents.
2. To minimize the cost, energy consumption and environmental impacts of housing.
3. To ensure that the impact of new housing construction or rehabilitation does not exceed the community's ability to reasonably provide adequate public facilities (e.g. schools and municipal services).

Objectives

1. Promote the preservation of the existing housing stock, particularly in the village centers of the Town.
2. Support public and private agencies involved with planning, financing and developing affordable housing consistent with existing neighborhoods.
3. Enable residential development on minimal lots and as dense as feasible near the village and hamlet areas.

Recommendations

1. The Town should consider expansion of the village areas in the Zoning Bylaws to allow for dense residential development.
2. The Town should revise its Zoning Bylaws to allow minimal lot sizes in village and hamlet areas.
3. Given that housing, and in particular affordable housing, is a regional issue, Barnard should assist the Regional Planning Commission with the Regional Plan Policies whenever possible.
4. Given the high cost of replacement for housing units, high priority should be given to preservation of affordable housing already in existence.
5. Barnard's Zoning Bylaws should be evaluated to determine their suitability in achieving the Town's stated housing goals, including whether incentives should be added for development of affordable housing.
6. The Barnard Planning Commission or a town committee could work with State housing agencies, non-profit organizations and lending institutions to insure the availability of loan or grant funds for Vermonters to purchase, acquire or improve their primary homes.
7. The Barnard Planning Commission or a town committee could actively cooperate with local and regional non-profit housing trusts to evaluate the need for affordable housing in Barnard, develop new affordable housing and preserve existing housing through mechanisms that assure the perpetual affordability of that housing.
8. The Barnard Planning Commission or a town committee could work with the Regional Planning Commission to retain Vermont's innovative publicly financed home mortgage lending and housing assistance programs through which the region's low and moderate

income families, disabled individuals and the elderly are enabled to secure affordable housing.

XI. FLOOD RESILIENCE

BACKGROUND

The town of Barnard, much like the rest of Vermont, is no stranger to significant and damaging flooding. Perhaps the worst flooding in recent history occurred on August 28, 2011 as the result of Tropical Storm Irene. Approximately 4-5" of rain fell in the area, on ground that was already saturated, causing extensive flash flooding. Due to the flooding, the town suffered $1 to $2 million dollars in estimated damage, mostly to roads and bridges.[16] In fact, currently the streambank opposite the town garage is now a landslide due to Irene.

In addition to the Flood Resilience chapter, the Town Plan incorporates flood language in other areas of the plan:

- Protection of floodplains: Page 12
- Flood Hazard Overlay: Page 15
- The benefits of wetlands: Page 19

Flood Hazard & Fluvial Erosion Hazard Areas in Barnard

Locust Creek and Gulf Stream and Broad Brook, are subject to periodic flooding. This is to be expected as flooding on the order of every few years is natural in a functioning floodplain. Floodplains and Fluvial Erosion Hazard Areas (those areas where lateral erosion is more of the threat than inundation) are unsuitable for development because of the high loss potential for life and property as well as the limited ability of septic systems to perform adequately during periods of high water.

Areas of Barnard that are vulnerable to flooding or are at risk for erosion are:

- Gulf Stream along VT 12
- Locust Creek along Chateauguay Road and along VT12
- Broad Brook into East Barnard
- Streams that have been modified in the past

Flood Hazard Areas in Barnard		
358 acres of floodplain. Just over 1% of the town is in the floodplain. 1% of town (322 acres) may be in the developable portion of the floodplain (not including wetlands).	35 residences, 0 commercial/public buildings in the floodplain with 11 flood insurance policies insuring $2m.	All of Barnard has approximate flood extents without flood elevations and these areas include Locust Creek and Pond Brook from Silver Lake as well as Broad and Barnard Brooks and Gulf Stream.

The Vermont Natural Resource Atlas depicts unnumbered 'A' flood zones in Barnard based on FEMA Flood Insurance Rate Maps (FIRMS). "A flood zones" are areas subject to inundation by the 1-percent-annual-chance flood event using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or floodways are shown. In the

[16] "2012 Town & School District Annual Report." Barnard, Vermont. (December 21, 2011).

A zone areas, mandatory flood insurance purchase requirements and floodplain management standards apply.

Promoting Flood Resilience in Barnard

FLOOD HAZARD REGULATION

The next Irene will come and towns need to minimize damage to infrastructure. Rebuilding and buyouts are slow and can be difficult financially and emotionally. New river corridor maps were released in 2014 by the State and towns can use these to plan for and protect infrastructure.

Barnard's adopted Flood Hazard Bylaw sets the minimum development standards allowed by the National Flood Insurance Program (NFIP). Considering the potential for severe flooding in Barnard, it is sensible to consider alternative approaches to Flood Hazard Regulation. Additionally, State Statute requires that all communities have policies and strategies that protect Flood Hazard areas.

Any updates to the Barnard Flood Hazard Bylaw that are more restrictive than they are now would apply only to new development – existing development would be grandfathered and could continue to operate within the area, until it suffers major damage or is substantially improved, at which point it has to come into compliance with flood regulations. Potential strategies to protect the Flood Hazard area could cover a wide range of options, including:

- **Prohibition on New Development** – No new primary structures (commercial or residential) in the floodplain. New modest accessory structures and additions to existing structures are still allowed. A prohibition within the floodway, however, is a good idea and is essentially mandated by the NFIP.

  Also important to consider is exactly what the definition of "new development" will include. The Planning Commission could include adding smaller additions and minor renovations to existing structures over a certain size. This is not a commonly used methodology in most communities as it impacts grandfathered uses and can be challenging to implement. Some additions and any redevelopment over 50% of a structure's value must be done according to NFIP standards, though.

- **Prohibition of Specific Types of Development –** An alternative to an outright prohibition on development is to identify specific types of development that should be kept from developing within the floodplain. In some communities, new residential and commercial development has been prohibited from developing in the floodplain. In others, only residential has been prohibited. Decisions on which types of uses to prohibit are generally made with substantial citizen input with considerations for what will most substantially reduce risks to lives and property.

- **Increasing Standards** – Communities can choose to increase the requirements for new developments in the floodplain while still allowing all or most forms of development. Increased standards could include a requirement that structures be elevated higher than the minimum standards required by the NFIP. Going one foot above the base flood elevation is a common standard in the region, but going even further and requiring two feet of "freeboard" can result in major reductions to flood insurance premiums. Such standards could also include more specific requirements for tying down structures, elevating utilities so that flood are less damaging, making structures more capable of allowing floodwaters to pass through them (such as using piers instead of fill to elevate), and using the No Adverse

Impact standard to not increase flood damage elsewhere.

- **Create River Corridor Protection Area** - Some communities have created an area that extends beyond the mapped flood hazard areas. Often this River Corridor Protection Area uses fluvial erosion hazard data as part of its basis, but can also include simple setbacks from rivers in all parts of the community as a way to deter development in areas that may erode in the event of severe flooding.

Future revisions to the Barnard Flood Hazard Bylaw will require input from the community regarding the level of regulation they believe is necessary to protect citizens and their buildings from severe flood hazard events. Provided that all parts of the Flood Hazard Bylaw meet the minimum requirements of the NFIP, communities have a broad range of flexibility in which to regulate the flood hazard area. For example, a community could prohibit commercial development in the floodplain everywhere except a village, because in some communities such a restriction would be damaging to the village center.

Goals

1. Protect the citizens, property and economy of Barnard and the quality of their rivers as natural and recreational resources by using sound planning practices within designated Flood Hazard Areas and beyond.

Objectives

1. Allow only agriculture, recreational and open space uses in floodplains.
2. Discourage new development within the town's 100-year floodplain, excluding properly designed outbuildings and renovations that meet the requirements for Flood Hazard regulation as stipulated by the Federal Emergency Management Agency.
3. Ensure that any new development allowed creates "no adverse impact" through design and mitigation measures.
4. Reduce impervious cover that leads to flash flooding, and increase retention and infiltration of rain.
5. Lessen the conflict between roads and streams by moving the roads when possible, abandoning redundant bridges, or upsizing water crossings.
6. Adopt road and bridge standards to the 50- or 100-year storm level.
7. Continue to promote emergency planning for flood response.

Recommendations

1. The Planning Commission should ensure Barnard's Flood Hazard Bylaws mitigates risks to public safety, critical infrastructure, historic structures and municipal investments from inundation and erosion.
2. The Planning Commission should work with VTrans on improving the flood capabilities of state-owned infrastructure or town infrastructure.
3. The Selectboard and Emergency Coordinator should continue to develop emergency preparedness procedures.

XII. RELATIONSHIP OF BARNARD'S PLANNING ACTIVITIES TO ITS NEIGHBORS

Because of inter-town relationships, this section evaluates the plans of adjacent municipalities. This evaluation discusses how development proposals and planning activities and adopted plans in neighboring towns could affect Barnard. Where there are plans that are incompatible with this Plan, it is important to identify them and to seek ways to mitigate conflicts. Barnard is bounded by five towns: Bethel, Bridgewater, Pomfret, Royalton, and Stockbridge.

Bethel's Town Plan was last updated in 2014. It is the nearest town with an industrial base to Barnard. A mid-sized rural community, Bethel's socio-economic center is its village. Two Vermont highways, Routes 107 and 12, pass through the village, with additional direct access to 1-89 and railroad sidings. Bethel's land use recommendations for rural areas coincide with the pattern proposed in Barnard.

The development trends along the boundaries of Barnard shared by Bridgewater, Pomfret and Stockbridge are similar if not identical to Barnard: that is, the gradual development of single-family homes. Other than home businesses, there is little growth of commercial or industrial uses in these areas.

Bridgewater has no bylaws in effect, but has used its Plan in evaluating Act 250 projects. Pomfret had a Town Plan (2007) that is currently being updated and bylaws with similar recommendations for growth and land use. Stockbridge has a new Town Plan (2015) which is compatible with Barnard's.

Most of the border with Royalton is similar to the borders with Bridgewater, Pomfret and Stockbridge. A possible concern to Barnard is the lack of bylaws in Royalton and, particularly, what kinds of development might occur in the North Road area.

As Barnard's Town Plan allows for the preservation and continuance of the Town's rural nature, only benevolent effects should result for adjacent towns.

Barnard is within the region serviced by Two Rivers-Ottauquechee Regional Commission. Barnard is one of thirty municipalities that comprise the Region, which covers northern Windsor County, most of Orange County, and the Towns of Pittsfield, Hancock, and Granville. The Commission was chartered in 1970 by the acts of its constituent towns. One of the Commission's primary purposes is to provide technical services to town officials and to undertake a regional planning program. The Commission's Regional Plan, adopted in 2015, will remain in effect for a period of five years. Policies for management of new development within town centers, village settlement areas, hamlets, rural, conservation and resource areas are substantially similar to those set forth in the Barnard Town Plan. It is reasonable to conclude that Barnard's Town Plan and the Regional Plan are compatible and complementary to one another as well as to the goals of the State's Planning and Development Act (24 V.S.A., Chapter 17).

Goals

1. To work to maintain the natural beauty of the region while allowing for economic growth.
2. To develop regional solutions to problems that transcend Town borders.

Objectives

1. Work with neighboring towns on areas of mutual interest.
2. Work to ensure that Barnard's views are known on a wider scale.

Recommendations

1. The Town should continue to actively participate in Two Rivers-Ottauquechee Regional Commission and exchange planning information and development trend data with neighboring communities.
2. The Planning commission should review State Agency planning documents to follow possible impacts on Barnard.
3. The Selectboard should explore grant opportunities with Bethel to build affordable housing for the area since sites may be easier to develop in Bethel.
4. The Selectboard should work with bordering towns on any inter-town Class 4 road issues.
5. The Conservation Commission should work with neighbors in Pomfret and Royalton (Broad Brook Mountain) to preserve wildlife habitats in large areas of contiguous forest in East Barnard.
6. The CNT Committee should work with Stockbridge, Bridgewater, and the Vermont Fish and Wildlife Department to expand the proposed Barnard Chateauguay/No Town Conservation Area.

XIII. PLAN IMPLEMENTATION

The Town of Barnard has an array of tools to carry out the goals and objectives of this Town Plan. By the end of 2015, the following local or state growth management tools were in place:

Barnard Town Plan
Barnard Unified Bylaw
Barnard Road Ordinance
Potable Water Supply and Wastewater Rules
Refuse Disposal Ordinance
Solid Waste Disposal and Recycling Ordinance
Land Fill Policy
Silver Lake, Rules for Regulating Use of
Traffic Ordinance
GIS Mapping
Parcel Maps
Act 250

Many of this Plan's recommendations reference or suggest revisions to one or more of these existing tools. In addition, some recommendations focus on new studies to be conducted by the Planning Commission, citizen advisory groups, Town departments, State and regional agencies and others. There should be continued revising of planning maps and creation of additional maps (dealing with lots, wetlands, soils, trails and roads) to be used for performance-based development. Bylaws and ordinances should continue to be looked at in light of recommendations in this Plan.

Process for Modification and Updating
The Town of Barnard first adopted a plan on August 20, 1971 as the Barnard Town Plan and a Town Plan with revisions and updates has been adopted every five years since then. The Town Plan is a dynamic document and represents a process just as much as it does a product. The nature of growth and change quickly dates the data contained within the Plan. The Plan must be readopted at least every five years. At a minimum, updated statistics should be incorporated on these occasions. Of course, other revisions and modifications most likely will be needed to reflect changing conditions. While the Planning Commission is responsible for maintaining the Town Plan, any individual or group may initiate changes. 24 V.S.A. Section 4384 details the procedures to be followed for the adoption of plans and any amendments.

Implementation Timeline

Task	Responsibility	Timeline
Historic Preservation		
Map historically significant properties, including cemeteries, meeting houses and schools and identify previous locations of these or similar historical structures or areas of Town.	Conservation Commission	Long-Term
Ensure that landowners are aware of any significant historic locations (as mentioned above) and the Town should support owner's efforts to preserve these locations.	Conservation Commission	Ongoing
Keep the Danforth Library, Town Hall and East Barnard Community Hall buildings in good condition and respect their historical character.	Selectboard	Ongoing

Seek National Historic Site designations for old schoolhouses and their exteriors should be preserved in their historical shape.	Planning Commission	Long-Term
Consider development's impact on historic structures or sites.	Zoning Administrator	Ongoing
Land Use		
Work with the Chateauguay No-Town Committee (CNT), the Conservation Fund (CF) and the Vermont Land Trust (VLT) to educate and assist landowners with the conservation of their land.	Conservation Commission	Ongoing
Work with the White River Partnership and the State's Water Quality Division on establishing the highest possible management types and classifications for the Barnard Chateauguay Conservation Area that reflect Barnard's goals for the area.	Conservation Commission	Ongoing
Allow greater residential density than in the Barnard Chateauguay Conservation Area, but less than in the Rural, Forest and Farmlands Area.	Planning Commission	Mid-Term
Explore alternatives in addition to traditional zoning which limit development to low impact uses.	Planning Commission, Zoning Administrator	Mid-Term
Continue to work with The Conservation Fund and the Vermont Land Trust and other appropriate organizations to educate and assist landowners with the conservation of their land.	Conservation Commission	Ongoing
Evaluate the ability of Town services and infrastructure to accommodate growth.	Planning Commission, Selectboard	Mid-Term
Work on a soils and productive farms overlay map and use it to identify the most important farmlands in town.	Planning Commission	Long-Term
For larger subdivisions, consider allowing a rural version of cluster development with shared access to open spaces.	Planning Commission, Zoning Administrator	Long-Term
Consider adopting subdivision regulations for the division of large parcels of land into smaller ones, along with provisions to avoid forest fragmentation, and consider maximum density provisions such as only allowing one building per 5 acres, while allowing smaller minimum lot sizes.	Planning Commission, Zoning Administrator	Long-Term
Investigate regulations on exterior lighting.	Planning Commission	Short-Term
Work with landowners to encourage access for recreational activities on land.	Planning Commission, Selectboard	Ongoing
Adopt access management techniques (see Transportation section).	Selectboard	Mid-Term
The preservation of stone walls and old stone foundations should be reasonably accommodated during the design of developments.	Zoning Administrator	Ongoing
Study the idea of transfer of development rights and tax incentives to promote "smart growth" and encourage through incentives the preservation of working forests and farms on large parcels.	Planning Commission, Conservation Commission	Long-Term
Consider special provisions for ridgeline development to lessen scenic and environmental impacts.	Planning Commission	Short-Term

Encourage grazing and mowing arrangements between farmers and property owners.	Selectboard, Planning Commission	Ongoing
Encourage the burial of all new utility lines, when reasonable.	Selectboard, Planning Commission	Ongoing
Strive for reasonable and safe access (sidewalks, paths, etc.). As walking is increasingly recognized as an essential part of healthy living, seek opportunities to improve the walking environment within the village and hamlet areas. (For example, a safe, walkable linkage between Barnard Academy, General Store, and Silver Lake.)	Planning Commission	Ongoing
Retain the existing commercial areas in future zoning bylaws at the locations that are the existing commercial areas.	Planning Commission	Ongoing
Commercial uses allowed in the Commercial Area shall be conditional uses subject to criteria that limit their size and impact.	Zoning Administrator	Ongoing
The permitted and conditional uses allowed in the Rural, Forest and Farmlands Area shall also be allowed in the Commercial Area.	Zoning Administrator	Mid-Term
Consider expanding protections.	Planning Commission	Long-Term
Initiate an intense campaign to inform fishermen, boaters and lakeshore property owners about the dangers of milfoil and other invasive aquatic plant and animal species, as well as best management for lawns to reduce nutrients.	Conservation Commission	Long-Term
Ensure that lakeside conversions of dwellings are having septic systems permitted properly.	Zoning Administrator	Ongoing
Work with the state to explore the creation of a public access point with proper signage to avoid negative impacts to the lake species, as well as best management practices for lawns to reduce nutrient runoff.	Planning Commission, Selectboard	Ongoing
Determine areas subject to streambank erosion hazards in consultation with the state's River Management Program and consider regulations for these areas.	Planning Commission	Mid-Term
The Zoning Bylaws should be revised to ensure that development avoids building in natural heritage areas or outstanding natural communities.	Planning Commission, Zoning Administrator	Long-Term
Inventory critical natural areas.	Conservation Commission	Long-Term
Ensure slopes greater than 25 degrees in steepness should remain predominantly in forest cover. Development on these areas should be permitted only if it can be demonstrated that development will have safe access and not be detrimental to the environment.	Planning Commission, Selectboard	Mid-Term
Identify and map the delicate ecosystem of higher elevations to protect them from detrimental development or development that would interfere with their function as a continuing source of clean water for both surface and ground water supplies.	Conservation Commission	Long-Term
Future revisions to the Zoning Bylaw should consider using elevation in restricting development.	Planning Commission	Mid-Term
In areas where shallow or wet (hydric) soils exist, consider prohibitions on development or strict performance standards.	Planning Commission, Selectboard	Long-Term

Vernal pools should be retained in their natural state for provision of wildlife habitats and as retention areas for runoff.	Planning Commissiand, Selectboard	Ongoing
Before allowing new structural development, consult State wildlife officials' maps to ensure the protection of deer wintering areas, bear corridors, and bobcat habitats.	Zoning Administrator	Ongoing
Transportation		
Where major modifications are being proposed to a state or town road, planning should incorporate the scenic attributes of the roadway. These improvements should be designed to be compatible with the setting and enhance aesthetic quality whenever practical. Removal of roadside trees must be coordinated with the town's Tree Warden. The public shall have an opportunity to discuss proposed changes with the Agency of Transportation or the Town, as appropriate.	Tree Warden, Selectboard	Ongoing
Before the Town adopts a new road or upgrades an existing Class 4 highway, the property owner(s) making the request should be responsible for the cost of improving and/or building the road to town specifications. Final decision regarding the nature of the improvement rests with the Selectboard.	Selectboard	Ongoing
Given the interest in and benefits from biking, hiking, snowmobiling, cross-country skiing and similar outdoor recreational activities, the Town shall retain existing Class 4 roads and trails for recreational use, or exchange for alternate routes.	Selectboard	Ongoing
Significant road improvements shall only be conducted at unsafe locations or on roads leading into areas where the Town desires to encourage development. By keeping remote areas less conveniently accessed, the Town is helping keep future residential and non-residential development where most appropriate.	Selectboard	Ongoing
Prospective developments should not only evaluate traffic impacts, but also their impacts on intermodal transportation. For example, proposed developments should consider planning for pedestrian facilities such as sidewalks or trails, bicycle paths or transit stops.	Selectboard, Zoning Adminstrator	Ongoing
The town road ordinance and other bylaws should be revised to include concepts that should be employed in evaluating access for new developments.	Planning Commission	Mid-Term
Any plan for improvements to Route 12 should not unduly compromise the historic, scenic, rural, natural and cultural characteristics of this route. Economic development objectives or new growth creating increased demand for upgrading of this route need to be balanced with the preservation of Barnard village.	Selectboard	Ongoing
Maintain active participation on the Regional Transportation Advisory Committee (TAC) of the Two Rivers-Ottauquechee Regional Commission.	Selectboard	Ongoing
A sidewalk or pedestrian/bike path should be built connecting the school and Silver Lake State Park to the village center.	Selectboard	Long-Term
A park and ride lot should be constructed at the Town Hall lot.	Selectboard	Long-Term
Regularly survey and inventory Class 2 and Class 3 Town road conditions and drainage systems.	Road Department	Ongoing
Maintain gravel roads as opposed to paving existing gravel roads.	Selectboard	Ongoing

Discourage through truck traffic on TH#3 (the North Road) by way of weight-limit restrictions and encourage Bethel and Royalton to do the same.	Selectboard	Mid-Term
Continue restricted use of uninhabited Class 4 roads and trails by motorized vehicles in mud season and in the fall to prevent abuse/erosion.	Selectboard	Ongoing
Continue to participate in regional and State sponsored initiatives that help mitigate wildlife collisions with motorists, including construction of facilities that encourage safe wildlife passage.	Selectboard, Planning Commission	Ongoing
Amend the Road Ordinance and Traffic Ordinance to incorporate the recommendations of this Plan.	Selectboard	Mid-Term
Establish a Policy for discontinuance of Town roads to preclude discontinuance of through roads or rights of way.	Selectboard, Planning Commission	Mid-Term
Support increased public transit opportunities for residents.	Selectobard	Ongoing
Any subdivision bylaws should mitigate the transportation system's influence on habitat fragmentation and natural resource degradation.	Planning Commission	Ongoing
Energy		
Develop community education, outreach and informational programs, in cooperation with other groups and organizations. Topics should include, but not be limited to: energy conservation techniques, energy-efficient products, weatherization programs, and renewable energy issues.	Energy Committee	Short-Term, Ongoing
Work with local school teachers and administrators to promote energy literacy in the classroom.	Energy Committee, Planning Commission	Short-Term, Ongoing
Promote home energy audits, weatherization upgrades and efficiency measures. Ensure that home and business owners are aware of and have access to financing programs in support of these, such as PACE or on-bill financing with GMP.	Energy Committee, Planning Commission	Ongoing
Proposed land development or subdivisions should be designed to employ advanced energy conservation & efficiency principles—such as solar orientation, roof slope, and protective wind barriers.	Selectboard, Zoning Adminstrator	Ongoing
Consider enacting provisions (such as density bonuses) that encourage development in locations that best accommodate energy innovation, conservation, and efficiency measures.	Planning Commission	Mid-Term
Research and implement energy conservation and efficiency measures in Town-owned buildings.	Energy Committee	Mid-Term
Encourage adherence to the State's Residential and Commercial Building Energy Codes (RBES and CBES) as a minimum.	Selectboard	Short-Term
Recommend that outdoor wood furnaces, if used, meet the highest efficiency and emission standards currently available.	Energy Committee, Planning Commission	Ongoing
New Town facilities shall be centrally sited (close to the village center) whenever feasible, to promote efficient travel patterns.	Selectboard	Ongoing
Designate a ride-share parking area in the village center(s) to facilitate car-pooling.	Selectboard	Long-Term

Support enhanced service to Barnard by State and regional public transportation programs.	Energy Committee, Planning Commission, Selectboard	Ongoing
Support the development of bikeways, footpaths, and crosswalks in the village center to promote alternatives to driving.	Planning Commission	Ongoing
Encourage home occupations and small-scale home businesses.	Planning Commission, Selectboard	Ongoing
Allow residential-scale wind towers, provided they meet height and setback requirements and are sited with due respect to Barnard's Siting Standards (Appendix B).	Selectboard	Ongoing
Explore the potential for off-grid micro-hydro projects, provided they do not disrupt fish habitat.	Energy Committee, Planning Commission	Mid-Term
Ensure Barnard's Zoning Bylaws incorporate: Permitting of off-grid renewable generation systems throughout town, Screening of both off- and on-grid renewables, and, Barnard's Siting Standards	Energy Committee, Planning Commission	Mid-Term
Encourage solar installations on homes, businesses, and public buildings, especially roof-mounted systems, both photovoltaic and thermal. Support ground mounted systems as an alternative, provided they are sited with due respect to Barnard's Siting Standards.	Planning Commission, Selectboard	Ongoing
Upgrades to existing utility-scale electric generation, transmission and distribution facilities, and proposals for new facilities, shall be designed, as much as possible, to have minimal visual impact and give due consideration to the Barnard's Siting Standards.	Selectboard, Zoning Adminstrator	Ongoing
Periodically refine the Siting Standards.	Energy Committee, Planning Commission	Short-Term
Develop guidelines to direct local participation in Section 248 proceedings for the review of utility projects proposed for Barnard or neighboring communities which may affect the town.	Energy Committee, Planning Commission, Selectboard	Short-Term
To help ensure a sustainable source of fuel wood production and improvement of Barnard's forests, encourage landowners to enroll in the State's Use Value Appraisal Program.	Energy Committee, Planning Commission, Selectboard	Ongoing
Outdoor Lighting		
New commercial or subdivision lighting installations shall be designed to minimize glare and skyglow, to not direct light beyond the boundaries of the area to be illuminated or onto adjacent properties, and to minimize lighting levels to that required to safely facilitate activities taking place at such locations. Use of cut-off or shielded fixtures to direct light downward or a reduction of the amount of light being generated shall be required.	Zoning Administrator	Ongoing

For large projects, lighting professionals shall give due consideration to the latest *Outdoor Lighting Manual for Vermont Municipalities* (Chittenden County Regional Planning Commission).	Zoning Administrator	Ongoing
Where high ambient or background lighting levels are adjacent to planned commercial uses, such levels should be considered when evaluating the need for additional lighting.	Zoning Administrator	Ongoing
Lighting schemes that serve as advertising or to attract attention to these uses are not to be allowed. Excessive pole height is inconsistent with this Plan.	Zoning Administrator	Ongoing
Illuminated signs may not be lit beyond the hours of operation of the business.	Zoning Administrator	Ongoing
Facades should only be lit on public buildings and the use of streetlights minimized.	Zoning Administrator	Ongoing
Education		
The School Board and Town should work together to encourage additional uses of the school, such as adult education and other community activities.	School Board, Planning Commission, Selectboard	Ongoing
The School Board should continue to work with area schools in an effort to keep the school open while constraining costs.	School Board	Ongoing
Energy efficiency should become a part of the culture and curriculum of the school.	School Board	Short-Term
If the school closes due to too few students, the School Board and the Selectboard should work together to develop alternative uses for the building and site.	School Board, Selectboard	Long-Term
Utilities, Facilities, and Services		
Short- and long-term management plans should be developed for each public structure in town:	Selectboard	Long-Term
Consult with related organizations and budget to replace and update emergency buildings, vehicles and equipment as needed.		
Identify private cemeteries and protect these sites. Once private cemeteries are identified, landowners should be encouraged to contact the Vermont Old Cemetery Association about preserving a privately owned cemetery.	Conservation Commission	Long-Term
Support the existence of a U.S. Post Office in Barnard village.	Planning Commission, Selectboard	Ongoing
Provide input to Green Mountain Power on placing or replacing utility lines.	Planning Commission, Selectboard	Ongoing
Power and telecommunication companies shall avoid construction of additional power and phone lines in the Chateauguay No-Town Conservation Area.	Planning Commission, Selectboard	Ongoing
Towers for wireless service providers and/or broadband shall be required to allow other providers to co-locate on their facilities when feasible, subject to reasonable terms and conditions.	Planning Commission, Selectboard	Ongoing

To minimize conflicts with scenic values, telecommunication tower design and construction shall follow these guidelines, whenever possible:	Selectboard	Ongoing, Long-Term
Be located in non-residential areas and away from visually sensitive areas, prominent scenic areas and historic areas;		
Be located in forested areas when possible, or camouflaged on buildings;		
Be sufficiently landscaped to screen related ground fixtures from public vantage points, such as trails, roads or water bodies;		
Utilize materials, forms (including asymmetrical tree shapes), color schemes, mass, minimal height and other design elements to promote aesthetic compatibility with surrounding uses and to avoid adverse visual impacts;		
Where construction of access roads is involved, it should be situated to generally follow the contour of the land and to avoid open fields or meadows to minimize its visibility;		
Towers should not be illuminated by artificial means and not display strobe lights, except when required by the FAA;		
Towers shall avoid breaking the silhouette of peaks and ridges by locating downslope whenever feasible, and be sited in areas minimally visible to the traveling public, Silver Lake and the Appalachian Trail; and		
The height for towers, antennae and tower-related fixtures shall be as close to mature tree height as possible while still achieving the coverage objective.		
In planning for telecommunication facilities, due consideration should be given to the environmental limitations of any given site. Impacts of the use on wildlife habitats, soil erosion, forestry and agricultural lands and similar resources should be carefully addressed. Projects that materially impact these resources are discouraged. The design plans for telecommunication projects situated on lands owned by the State shall be compatible with current Management Plans for Public Lands adopted by the Agency of Natural Resources.		
Towers, antennae and related fixtures that fall into disuse or are discontinued shall be removed. Local and State land use permits shall incorporate removal of inactive fixtures as a condition of approval.		
Towers, antennae and related fixtures that fall into disuse or are discontinued shall be removed. Local and State land use permits shall incorporate removal of inactive fixtures as a condition of approval.		
Continue town support of the Recreation Committee, including the use of town buildings for functions.	Planning Commission, Selectboard	Ongoing
Work with area cultural organizations to continue cultural offerings in or near Barnard and to make transportation available for cultural events outside of Town.	Residents, Local Groups	Ongoing

Continue to work with the Barnard Silver Lake Association and the State in their efforts to preserve the Lake.	Planning Commission, Selectboard	Ongoing
Provide information regarding the availability of community services to the residents of Barnard.	Selectboard	Ongoing
Support the appropriation requests from social service agencies that provide in-home health services.	Selectboard	Ongoing
Working with neighboring communities' joint efforts, support private sector efforts to develop affordable, quality child care as needed.	Planning Commission, Selectboard	Ongoing
Economic Development		
Survey the community (or hold a public meeting) to gain input and build consensus on the economic future of Barnard.	Planning Commission	Mid-Term
Promote and encourage businesses that add value to farm or forest products, or that are based on our rural nature and natural resources.	Planning Commission, Selectboard	Ongoing
Encourage farmers and forestry professionals to be active members in local decision-making roles.	Planning Commission, Selectboard	Ongoing
Provide a list of economic resources on the Barnard website, particularly those that might enhance agricultural and forestry opportunities.	Web Administrator	Mid-Term
Retain the existing commercial areas in future zoning bylaws at the locations that are the existing commercial areas. The permitted and conditional uses allowed in the Rural, Forest and Farmlands Area shall also be allowed in the Commercial Area.	Planning Commission	Ongoing
Apply for state-designation as a Village Center, to receive priority consideration for state grants and other resources.	Selectboard/TRORC	Short-Term
Continue to encourage and support the expansion of Digital Subscriber Lines (DSL).	Selectboard, Planning Commission	Ongoing
Consider investigating ways to change zoning to allow for and promote diversified agriculture.	Planning Commission, Zoning Administrator	Mid-Term
Encourage landowners to enroll in the State's Use Value Appraisal Program to ensure a sustainable source of fuel wood production and improvement of Barnard's forests at a reasonable rate of return.	Planning Commission, Selectboard	Ongoing
Housing		
Consider expansion of the village areas in the Zoning Bylaws to allow for dense residential development.	Planning Commission	Mid-Term
Revise its Zoning Bylaws to allow minimal lot sizes in village and hamlet areas.	Planning Commission	Mid-Term
Given that housing, and in particular affordable housing, is a regional issue, Barnard should assist the Regional Planning Commission with the Regional Plan Policies whenever possible.	Planning Commission	Ongoing
Given the high cost of replacement for housing units, high priority should be given to preservation of affordable housing already in existence.	Selectboard	Ongoing

Barnard's Zoning Bylaws should be evaluated to determine their suitability in achieving the Town's stated housing goals, including whether incentives should be added for development of affordable housing.	Planning Commission, Zoning Administrator	Mid-Term
Consider working with State housing agencies, non-profit organizations and lending institutions to insure the availability of loan or grant funds for Vermonters to purchase, acquire or improve their primary homes.	Planning Commission	Long-Term
Consider actively cooperating with local and regional non-profit housing trusts to evaluate the need for affordable housing in Barnard, develop new affordable housing and preserve existing housing through mechanisms that assure the perpetual affordability of that housing.	Planning Commission	Long-Term
Consider working with the Regional Planning Commission to retain Vermont's innovative publicly financed home mortgage lending and housing assistance programs through which the region's low and moderate income families, disabled individuals and the elderly are enabled to secure affordable housing.	Planning Commission	Ongoing
Flood Resilience		
Ensure Barnard's Flood Hazard Bylaws mitigates risks to public safety, critical infrastructure, historic structures and municipal investments from inundation and erosion.	Planning Commission	Short-Term
Work with VTrans on improving the flood capabilities of state-owned infrastructure or town infrastructure.	Planning Commission	Short-Term
The Selectboard and Emergency Coordinator should continue to develop emergency preparedness procedures.	Selectboard, Emergency Coordinator	Ongoing
Relationship of Planning Activities to Neighbors		
Actively participate in Two Rivers-Ottauquechee Regional Commission and exchange planning information and development trend data with neighboring communities.	Planning Commission, Selectboard	Ongoing
Review State Agency planning documents to follow possible impacts on Barnard.	Planning Commission	Ongoing
Explore grant opportunities with Bethel to build affordable housing for the area since sites may be easier to develop in Bethel.	Selectboard	Ongoing
Work with bordering towns on any inter-town Class 4 road issues.	Selectboard	Ongoing
Work with neighbors in Pomfret and Royalton (Broad Brook Mountain) to preserve wildlife habitats in large areas of contiguous forest in East Barnard.	Conservation Commission	Ongoing
Work with Stockbridge, Bridgewater, and the Vermont Fish and Wildlife Department to expand the proposed Barnard Chateauguay/No Town Conservation Area.	Chateauguay No-Town Committee	Ongoing

XIV. APPENDICES

Appendix A: Definitions

Accessory Dwelling Unit (ADU) - Efficiency or one-bedroom apartments that are clearly subordinate to a single-family dwelling, with facilities and provisions for independent living (e.g., sleeping, food preparation, and sanitation). These units must comply with the following:

a. Have sufficient wastewater capacity.
b. Do not exceed 30 percent of the total habitable floor area of the single-family dwelling they are subordinate to.

Affordable Housing - According to 24 VSA §4303, affordable housing means either of the following, based on tenure:

a. Housing that is owned by its inhabitants whose gross annual household income does not exceed eighty percent of the county median income, or eighty percent of the standard metropolitan statistical area income if the municipality is located in such an area, as defined by the United States Department of Housing and Urban Development, and the total annual cost of the housing, including principal, interest, taxes, insurance, and condominium association fees is not more than thirty percent of the household's gross annual income.
b. Housing that is rented by its inhabitants whose gross annual household income does not exceed eighty percent of the county median income, or eighty percent of the standard metropolitan statistical area income if the municipality is located in such an area, as defined by the United States Department of Housing and Urban Development, and the total annual cost of the housing, including rent, utilities, and condominium association fees, is not more than thirty percent of the household's gross annual income.

Agriculture - The production, keeping or maintenance, for sale, lease or personal use, of plants and animals useful to man, including but not limited to: forages and sod crops; grains and seed crops; dairy animals and dairy products, poultry and poultry products; livestock, including beef cattle, sheep, swine, horses, ponies, mules, or goats, or any mutations or hybrids thereof, including the breeding and grazing of any or all of such animals; bees and apiary products; fur animals; trees and forest products; fruits of all kinds, including grapes, nuts and berries; vegetables; nursery, floral, ornamental and greenhouse products; or lands devoted to a soil conservation or forestry management program.

Agricultural Commercial - Any use of land or structures taking place on an owner occupied working farm that are beyond those exempted as an agricultural use or home occupation, including the on-site storage, preparation, processing, eating, and/or sale of agricultural products, not principally produced on the farm; and educational or entertainment activities such as special events, festivals, crop-based season events, ancillary catering, educational

experiences, agricultural technical tours, garden/nursery tours, historical agricultural exhibits, rand/farm tours, and winery/vineyard tours.

Best Management Practices (BMP) - Methods of activity generally established by regulatory authorities and practitioners as the best manner of operation. BMPs are generally more stringent than AMPs. BMPs may not be established for all industries or in agency regulations, but are often listed by professional associations and regulatory agencies as the best manner of operation for a particular industry practice.

Cluster - A development design technique that concentrates building in specific areas on the site to allow the remaining land to be used for recreation, common open space, and preservation of environmentally sensitive features.

Diversified Agriculture – Refers to when a farm branches out from traditional farming by adding new money making activities.

Establishment – A commercial business that operates within a building or structure. A single building or structure can contain more than one distinct establishment.

Existing Settlement - an existing center that is compact in form and size; that contains a mixture of uses that include a substantial residential component and that are within walking distance of each other; that has significantly higher densities than densities that occur outside the center; and that is typically served by municipal infrastructure such as water, wastewater, sidewalks, paths, transit, parking areas, and public parks or greens.

Expansion Areas - Land that extends the cohesive core of Regional Growth Areas or Designated Downtowns, Villages, or Growth Centers, with or without the presence of municipal sewer or water service. The land should be adjacent, as defined in 24 VSA §2791, to the cohesive core.

Floodplain - Floodplains are those areas likely to be flooded once every one hundred years ("the 100-year flood zone") or have a one percent chance of being flooded per year as minimally determined by the Federal Emergency Management Agency (FEMA) or better sources.

Floodway - The floodway is that area of a stream channel and its surrounding floodplain areas that must be kept clear to hold the 100-year flooding event floodwaters without substantial increases in the flood height. Any flood height increase of more than one foot is substantial. Floodways are determined by the Federal Emergency Management Agency (FEMA) or better sources.

Fluvial Erosion - Erosion caused by streams and rivers. Fluvial erosion can be catastrophic when a flood event causes a rapid adjustment of the stream channel size and/or location.

Intermodal - Transportation by more than one means of conveyance - as by foot, bike, car, truck, rail, air, etc.

Level Of Service (LOS) - Level of service is a qualitative measure defined as the ability of a maximum number of vehicles to pass over a given section of roadway or through an intersection during a specified time period, while maintaining a given operating condition.

1. LOS A: Highest LOS which describes primarily free-flow traffic operations at average travel speeds. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Stopped delay at intersections is minimal.

2. LOS B: Represents reasonably unimpeded traffic flow operations at average travel speeds. The ability to maneuver within the traffic stream is only slightly restricted and stopped delays are not bothersome. Drivers are not generally subjected to appreciable tensions.

3. LOS C: Represents stable traffic flow operations. However, ability to maneuver and change lanes may be more restricted than in LOS B, and longer queues and/or adverse signal coordination may contribute to lower average travel speeds. Motorists will experience an appreciable tension while driving.

4. LOS D: Borders on a range in which small increases in traffic flow may cause substantial increases in approach delay and, hence, decreases in speed. This may be due to adverse signal progression, inappropriate signal timing, high volumes or some combinations of these.

5. LOS E: This represents traffic flow characterized by significant delays and lower operating speeds. Such operations are caused by some combination of adverse progression, high signal density, extensive queuing at critical intersections, and inappropriate signal timing.

6. LOS F: This represents traffic flow characterized by extremely low speeds. Intersection congestion is likely at critical signalized locations, with high approach delays resulting. Adverse signal progression is frequently a contributor to this condition.

NFIP - National Flood Insurance Program.

No Adverse Impact - No Adverse Impact floodplain management is where the action of one property owner does not adversely impact the rights of other property owners, as measured by increased flood peaks, flood stage, flood velocity, and erosion and sedimentation.

Open Space - Any parcel or area of land or water essentially unimproved and set aside, dedicated, designated or reserved for public or private use or enjoyment, or for the use and enjoyment of owners and occupants of land adjoining or neighboring such open space.

Principal – Means foremost or chief.

Principal (Primary) Retail - A business whose primary use is the supply of merchandise or wares to the end consumer. Examples include (but are not limited to), supermarkets, hardware stores, dry-goods stores, pharmacies, big box stores, etc.

Renewable Energy Certificates (RECs) – A REC represents the property/legal rights to the environmental, social, and other nonpower qualities of renewable electric generation. A REC, and its associated attributes and benefits, can be sold separately from the underlying physical electricity associated with a renewable-based generation sources.

Resilience - The ability of a system, community, region or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

Secondary or Ancillary Retail – A business whose primary use is not retail sales, but contains a retail component that is clearly secondary to the primary use. Examples include (but are not limited to), eye doctor's offices, veterinarian's offices, small engine repair shop, manufacturer's with a small showroom, etc.

Service Business - Any establishment whose primary activity is the provision of assistance, as opposed to products, to individuals, business, industry, government, and other enterprises.

Sprawl - Dispersed auto-dependent development occurring outside of compact urban and village centers, along highways, and in rural countryside. Sprawl is typically characterized by:

a. Excessive land consumption;
b. Low densities in comparison with older centers;
c. Lack of choice in ways to travel;
d. Fragmented open space, wide gaps between development and a scattered appearance;
e. Lack of choice in housing types and prices;
f. Separation of uses into distinct areas;
g. Repetitive one-story development;
h. Commercial buildings surrounded by acres of parking;
i. Lack of public spaces and community centers.

Strip Development - Linear commercial development along an arterial highway leading from an urban or village center or connecting two centers. Strip development has many characteristics, not all of which need to occur for strip development to be present. The characteristics of strip development include, but are not limited to, the following:

a. Use of individual curb cuts for each project along the highway;
b. Lack of connections between the projects, except for the highway connection;
c. One-story buildings containing a single type of use;
d. Little to no pedestrian circulation between projects on the strip;

e. Accessibility of individual projects primarily to automobiles;
f. Separation of projects by parking lots;
g. Individual project design, signage, lighting, parking, and landscaping; lack of coordination between projects concerning these items, causing cluttered appearance;
h. Narrow depth and broad street frontage of project parcels to take advantage of exposure on the arterial highway.

Three Phase Power - Three-phase electric power is a common method of alternating-current electric power generation, transmission, and distribution. It is a type of polyphase system and is the most common method used by electrical grids worldwide to transfer power. It is also used to power large motors and other heavy loads.

Wetland - Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Appendix B: Barnard's Energy Facility Siting & Development Standards[17]

FACILITY DEVELOPMENT

Priorities: Given the rationale for renewable energy generation stated in the Energy Chapter of this Town Plan (see "Preferred Forms of Energy Development"), the following forms of energy development will be considered for support by the Town of Barnard, in order of priority:

1. Increased system capacity through state, utility and municipally-supported energy efficiency and conservation programs.
2. Small, onsite distributed energy projects, including Individual and Group net-metered renewable energy projects and community-based projects that conform to municipal policies and standards.
3. In-place upgrades of existing facilities, including existing transmission lines, distribution lines and substations as needed to reliably serve the town and region.
4. New commercial, utility-scale energy generation facilities, if proposed, should have the following characteristics in order to be considered for support by the Town:
    a. **Plan Conformance.** Proposed projects should be identified in or be consistent with the Vermont Comprehensive Energy Plan, the Vermont Long-Range Transmission Plan and the utility's Integrated Resource Plan (IRP). A new facility should be considered only after potential alternatives, including increased energy efficiency, distributed energy systems, and existing facility upgrades are evaluated and found to be insufficient to meet system reliability needs or projected demand.
    b. **Benefits**. A demonstrated public need that outweighs adverse impacts to local residents and resources must be documented for municipal support of new, large-scale utility projects located within or which may otherwise affect the Town of Barnard. Facility development must benefit town residents, businesses, and property owners in direct relation and proportion to the impacts of the proposed development.
    c. **Impacts**. New generation, transmission, and distribution facilities must be evaluated for consistency with community and regional development objectives, and must avoid undue adverse impacts to public health, safety and welfare, and significant cultural, natural and scenic resources identified by the community.
    d. **Decommissioning**. All facility certificates or permits should specify conditions for system abandonment and decommissioning, including required sureties for facility removal and site restoration to a safe, useful, and environmentally stable condition. All hazardous materials and structures, including foundations, pads and accessory structures, must be removed from the site.

[17] The text for this Appendix is composed of excerpts from *Energy Policies and Standards: A Guide for Southern Windsor County Communities,* developed by the Southern Windsor County Regional Planning Commission with funding from the Vermont Department of Public Service and the U.S. Department of Energy, August 2011, pages 20-30.

FACILITY SITING

Siting Guidelines: The most critical element in the aesthetic impact of a project is where the project is placed on the landscape. Poor siting cannot be adequately mitigated. The choice of a suitable site should take into account more than just the footprint of the facility itself. Other elements to consider include: access roads, site clearing, on-site power lines, substations, lighting, and off-site power lines. Site clearing and roadways can have greater visual impacts than the facility itself. Site designers and developers should take steps to mitigate the effects of all of these elements, as well as the facility itself, so as to maximize the installation's harmony with its surroundings.

Preferred Areas: New generation and transmission facilities shall be sited in locations that reinforce Barnard's traditional patterns of growth, of compact village centers surrounded by rural countryside, including farm and forest land.

- Barnard does have a 5-acre capped landfill which may be suitable for solar development; however it lies within the protected Chateauguay area and is a few miles from three-phase power.

Prohibited Areas: Because of their distinctive natural, historic or scenic value, and their special significance to the community, energy facility development shall be prohibited with the following areas:

- Floodways shown on Flood Insurance Rate Maps (FIRMs) – except as required for hydro facilities.
- Fluvial erosion hazard areas shown on Fluvial Erosion Hazard Area (FEHA) maps – except as required for hydro facilities.
- Wetlands shown on Vermont State Wetlands Inventory (VSWI) maps, or identified through site analysis.
- Rare, threatened or endangered species habitat or communities.
- An excluded area must incorporate a buffer area of sufficient width to protect the resource values and integrity of the area.
- For further guidance on restricted areas, refer to Barnard's Land Use Map and the Land Use chapter of this Town Plan.

Significant Areas: All new generation, transmission, and distribution facilities, including net-metered systems, shall be sited and designed to avoid or, if no other reasonable alternative exists, to otherwise minimize and mitigate adverse impacts to the following natural, cultural and scenic areas and resources identified by the community, consistent with related community standards:

- Historic districts, landmarks, sites and structures listed, or eligible for listing, on state or national registers.
- Public parks and recreation areas, including state and municipal parks, forests and trail networks

- State or federally designated scenic byways, and municipally designated scenic roads and viewsheds.
- Special flood hazard areas identified on National Flood Insurance Program maps – except as required for hydro facilities.
- Public and private drinking water supplies, including mapped source protection areas.
- Primary agricultural soils mapped by the U.S. Natural Resource Conservation Service.
- Necessary wildlife habitat identified by the state or through site analysis, including core habitat areas, migration and travel corridors.
- For further guidance on significant areas, refer to Barnard's Land Use Map and the Land Use chapter of this Town Plan.

RESOURCE CONSERVATION

Farm and Forest Land. New generation and transmission facilities must be sited to avoid the fragmentation of, and undue adverse impacts to the town's working landscape, including large tracts of undeveloped forestland, open farm land, and primary agricultural soils mapped by the U.S. Natural Resource Conservation Service.

- Generation and transmission facility development must not result in the clear cutting or fragmentation of large tracts of undeveloped forestland, including core forest habitat areas mapped by the state or municipality. Facilities should be sited and/or clustered at the edge of timber stands and core forest habitat, along property boundaries, and in otherwise disturbed areas.
- Forest biomass used for energy use must be sustainably managed and harvested in a manner that preserves critical forest habitat and long-term forest health.
- In agricultural areas, energy facilities, including wind towers, solar panels, and accessory structures, are to be located and clustered on the least productive portion of the site – in nonagricultural areas, along field and forest edges, or on otherwise disturbed areas to avoid fragmenting open farm fields, and to minimize facility encroachment on primary agricultural soils. Off-site mitigation should be required where necessary to mitigate the impacts of facility development on primary agricultural soils.

Wildlife. New or expanded facilities must be designed, constructed and operated without significant impacts to wildlife and necessary wildlife habitat, including core habitat areas, migratory routes and travel corridors, and to state or federally listed rare, threatened and endangered species as mapped or identified through site investigation.

Scenic Resources. All new generation, transmission, and distribution facilities, including net-metered systems, shall be sited and designed to avoid or, if no other viable alternative location exists, to minimize and mitigate undue adverse visual impacts to the community's scenic resources, as viewed from public rights-of-way, public vantage points and adjoining

properties, and particularly within or as viewed from designated scenic byway corridors, historic districts, and scenic roads and views mapped by the municipality.

- Generation facilities, utility lines, accessory structures and access roads must be located outside of or on the periphery of scenic views or viewsheds, so that they do not become predominant focal points. The apparent scale or size of the facility may be reduced by locating it as far from public vantage points as possible. The facility must not extend above the background horizon line, as viewed from public vantage points (except as required for operation).
- Landscaping, screening and selective line burial must be employed as necessary to preserve scenic views of particular importance to the community.
- Ground-mounted facilities must be sited or screened so that they are not highly visible from adjoining properties. Net-metered wind facilities must be sited to minimize their visual impacts on neighboring residential and public properties, as recommended in the Vermont Public Service Department's publication "Siting a Wind Turbine on Your Property." A system rated under these guidelines must score no more than "minimal impact" on residential and public properties.
- All structures must be designed using context-sensitive, non-reflective materials, unobtrusive colors, and textures that will blend the facility into its natural setting or surrounding environment. Wind facilities are to be finished in a neutral, non-reflective color (e.g., matte gray, off-white or white) so that they blend into a range of sky conditions.
- Lighting must be the minimum required for safe facility operation, and incorporate energy-efficient, shielded light fixtures that are cast downward to minimize light trespass, glare and sky glow.
- No energy facility shall be used for purposes of advertising or display. Signs should meet local sign regulations, and be limited to required warning and safety signs and, for larger facilities, signs that identify the facility, the operator, and emergency contact information.

Historic Sites and Structures. Consistent with guidelines published by the Secretary of the Interior and the Vermont Division for Historic Preservation, new or expanded generation, transmission and distribution facilities must be sited and designed so that they do not:

- Require the demolition of a historic structure or disturb known or discovered archaeological sites.
- Result in physical or structural damage, a significant visual intrusion, or pose a threat to the use of a historic structure.
- Result in damage to or the removal of historic landscape features.
- Create a significant visual intrusion into public views of a historic building, group of buildings, or historic landscape, especially as identified in the municipal plan.
- Cause visual intrusion into a hillside that serves as a backdrop to a historic site or structure.
- Create a focal point that would disrupt or distract from elements of a historic landscape.

- Result in an significant intrusion in a rural historic district or historic landscape with a high degree of integrity.
- Significantly impair a vista or viewshed from a historic resource that is a significant component of its historic character and history of use.
- Visually overwhelm a historic setting, by being dramatically out of scale.
- Isolate a historic resource from its historic setting, or introduce incongruous or incompatible uses, or new visual, audible or atmospheric elements.

Net-metered systems located within historic districts or mounted on historic structures must meet the Secretary of the Interior's Standards for Rehabilitation, including specific standards for the retention of historic character, and for compatible additions and exterior alterations (e.g., see ITS Number 52, Incorporating Solar Panels in a Rehabilitation Project), and the following related standards:

- The historic character of listed properties and structures is to be retained and preserved. Facility placement and design must not detract from the historic character of the site, or destroy historic landscaping features and materials.
- Ground installations are preferred to roof-mounted installations on historic structures. To the extent functionally feasible, a ground-mounted system shall be installed in a location that minimize its visibility, such as a side or rear yard, and screened from the view of public rights-of-way and adjoining properties.