

TOWN PLAN
for
HARTLAND,
VERMONT

Adopted August 20, 2012

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PREFACE

This Plan is a guide to the future of our Town. It lays out basic facts or describes current conditions, sets goals, and then gives a series of recommendations that are meant to move the Town in the direction of the goals. This Plan has chapters that focus on the desired use and development of land, and also our desires in several other areas, many of which are required by Vermont law. The Plan will be the basis for any revisions to any land use regulations, and will hopefully guide other municipal actions, as well as help influence state or even federal actions in a way that Hartland desires.

The draft Plan has been created by the Hartland Planning Commission with assistance from our regional planning commission – Two Rivers-Ottawaquechee Regional Commission. Several citizens attended drafting sessions, and the Conservation Commission provided input as well. After gathering and incorporating comments as needed, a public hearing was held by the Planning Commission to further receive comment, and then the Selectboard held additional hearings of its own prior to final review and adoption.

This Plan is meant to be largely visionary, providing policies and recommendations, but generally not being an implementation tool. However, the Plan may be used in some proceedings, such as Act 250, in a way that gives it more force. During those proceedings the Plan should be able to stand on its own, and so the words used in this Plan have been chosen with care. Words like “shall” or “must” in these type of proceedings mean just that, while words like “consider” or “should” express a preference, but give some room for other choices.

This Plan is meant to represent the Town’s inclinations at a certain time under certain conditions. It will automatically expire in five years from adoption in order to force a revision of it to reflect any changes that have taken place. If any significant need arises within those five years that this Plan does not address well, the Town may amend the Plan ahead of schedule to deal with that new need.

OVERVIEW AND STATEMENT OF OBJECTIVES

The Hartland Town Plan provides a statement of objectives and a vision of the manner in which the future of Hartland should unfold. In general, this Plan is guided by six major goals in areas that are of primary concern and that are central to both our present and future well-being.

Major Goals

1. To provide Town services and facilities that meet the education, public safety, and health needs of current residents and the anticipated needs of a growing population in a cost effective manner.
2. To guide industrial and commercial development in a way that will provide for appropriate economic activities on a scale that largely maintains the Town's existing settlement patterns.
3. To preserve open space and the rural character and present population distribution of the Town.
4. To protect agricultural and forestry land uses by promoting practices that are economically viable and that protect natural resources.
5. To provide orderly growth in the village areas by planning for transportation, water, sewage, and public recreation facilities through public funding.
6. To conserve natural areas, unique habitats, and the quality of ground and surface waters.

Explicit goals, policies and recommendations that address particular issues can be found in each of the individual chapters of the Plan.

CHAPTER 1: LAND USE

INTRODUCTION

Existing Land Use

The growth and development of Hartland have been influenced mainly by its road network and geography. Cultural and social factors have also been important in shaping this growth. Hartland's pattern of settlement is one of small, localized centers - villages and hamlets - containing relatively high densities of residential and commercial use, surrounded by areas less densely settled, rural in character, with a mixture of low density residential, agricultural and forest land.

Hartland has become what it is by a process of slow growth and, until recent years, has been free to develop in its own way without being influenced by outside pressures. In recent years, there has been an increasing pressure to grow, exerted by factors of a regional nature. The burgeoning economy of the Hartford-Lebanon-Hanover area and the expansion of its institutions have attracted many people to the area. The emergence of Quechee, Woodstock, and West Windsor as recreational, second home and tourist-oriented areas has led to dramatically increased property values, not only for them, but also for neighboring Hartland. The people who serve resort areas often cannot afford to live there. This further increases the pressure on Hartland to provide more housing. In light of this situation, it is necessary for Hartland to evaluate what features are unique and valued by its citizens and take steps to prevent their loss while accommodating growth.

Traditionally, growth has been intended to be on an individual lot basis. Until recently, when a piece of land was sold, it was usually to an individual for a house site. Increasingly, land has been bought by developers for multiple-lot subdivision, and subdivided to its maximum carrying capacity for sewage. There may be inadequate concern for impact on schools, roads and emergency vehicle access. This involvement of third-party developers has the potential to drastically change the rate of growth and character of the town. The Town needs to plan for, monitor and regulate developments that may have the potential for significant impact on the community.

Growth Rate

Hartland has been growing rapidly in the last few decades, although the growth rate has been decreasing. According to U.S. Census figures, Hartland's population in 1970 was 1,806, in 1980 was 2,396, in 1990 was 2988, and had reached 3,223 by the year 2000. This represents a population growth rate of 33% during the 1970's, 25% during the 1980's, and 8% during the 1990's. A similar pattern is seen in the number of new homes built. In the late 1970's, an average of 29.4 housing units were built per year. In the 1980's, the average number of house built per year was 27.7, while in the 1990's the average number of new homes built each year had fallen to 9.5. The need for expanded Town services, including but not limited to roads, schools, and emergency services will continue relative to this growth. The rapid growth

experienced in recent decades has greatly increased the need for Town services, including roads, schools, and emergency services. Losses of agricultural land as well as other important resources continue to occur.

Although there has been an increase in the number of seasonal residential units since 1970, changes in counting and classification methods from census to census make comparisons difficult. Nonetheless, the available data show that growth in Hartland has primarily been due to the increase in the number of year-round, rather than seasonal, residences.

Hartland is primarily a “bedroom community”, in that most residents work in other towns. Of the 2,540 residents reported as employed by the 2000 U.S. Census, only 13% are employed in Hartland, a slight decline from 1990.

Hartland Planning Survey

In 1997 the Hartland Planning Commission mailed a planning questionnaire to 1,200 households of registered Hartland voters. Thirty-eight percent of the questionnaires were returned (455), with thirty-eight percent of those from resident landowners. The majority of respondents (68%) identified town land use regulations as the best way to preserve Hartland's small town atmosphere and rural/residential surroundings. Support was shown for regulation of subdivisions, multifamily dwellings, gravel pits, mobile home parks, and a variety of commercial and industrial land use, not including home occupations.

SITING ISSUES

The number of dwelling units in any specific area of Town is a major concern of the citizens of Hartland. The existing pattern of development indicates that some people have elected to live in villages in relatively close proximity to one another, and others have chosen to live in rural areas where dwellings are farther apart.

With a few serious exceptions, homes have been located in areas suitable both for building and for subsurface disposal of sewage. In recent decades, development of rural areas has not been related to farming, with its relatively large open space between dwellings, but rather to single family homes for year-round or vacation use. Unless control is exercised, densities may well become higher than is desired for sewage disposal and safe water supply.

In preparing this Town Plan, the Commission has carefully considered natural components of Hartland's landscape that it feels are basic in making recommendations for future land use or development. These critical elements are physical formations of the land and processes related to them that must have special protection. They are vital both to the maintenance of public health and the environmental quality of the Town; they are fragile in nature; they have irreplaceable value. Development or unwise use of the land where these critical elements are found would be detrimental to the land itself, as well as to the uses to be made of it and to the community at large. These critical elements include steep slopes, unsuitable soils, and the Town's scenic and agricultural resources

The steepness of the land, called slope, directly affects water runoff and erosion. Generally, as the slope increases, the suitability for development decreases. When vegetation is removed in order to construct roads and buildings on slopes steeper than 25%, severe environmental damage can result. Furthermore, slopes steeper than 25% present problems relating to adequate functioning of subsurface sewage-disposal systems. Development becomes abusive when the removal of trees and other vegetation results in increased runoff, increased soil erosion, increased stream sedimentation, reduced groundwater supply, higher flood levels, polluted streams and groundwater, unsafe roads and unstable construction.

Soils are the result of the interaction of many physical factors and processes operating over long periods of time. Some of the elements involved are: the nature of the bedrock, glacial activity, climate, topography, vegetation and animal life, all playing their parts in the production of various soils, each of which has characteristics of depth, composition, texture and stratification. In turn, these qualities of the soil determine the land's capability to absorb, percolate, and hold water, and its capacity to dilute and bear loads. The limitations to community development presented by various soil types and combinations thereof are determined by an analysis of the relationships each soil type bears to the other vital factors--namely--slope, depth to bedrock, and height of water table. Each soil, together with the slope on which it is found, may be rated as to how it will affect:

- the bearing capacity of roads and building construction;
- the safe functioning of subsurface sewage-disposal systems;
- the quality and quantity of water resources; and
- the fertility of the land.

The proper installation and operation of sewage treatment systems is of utmost importance as the density of development in Town increases. As groundwater sources can be irreparably damaged by contamination, and because polluting of any of the State's waters is prohibited, great emphasis must be placed upon safe sewage disposal. New households probably will continue to be served by individual subsurface disposal systems. Properly designed and installed systems safely treat household wastes so as to render them harmless to the public health and the environment. Because wells will be the source of drinking water for most new homes constructed in rural areas, the natural water purification process must work effectively. It can do so only when physical factors inherent in the land allow for the proper installation and continued functioning of such systems.

Some, but not all, of the physical factors affecting subsurface sewage disposal systems are:

- steepness of slope;
- depth to bedrock or other impervious layer;
- high ground water table;
- flood hazard; and
- inherent characteristics of the soil.

The regulations controlling the construction, use and maintenance of private sewage treatment will be entirely taken over by the State of Vermont in July 2007.

Hartland is a rural town with many hills. The tops and sides of those hills are very important to the appearance of the Town. To date, the pattern of settlement has been relatively little construction of structures on the tops of hills, with continuing extensive forestry and agricultural use of the hillsides. The ridgeline may be determined by the contour of the highest elevation, but in most places is actually formed by vegetation, usually trees. Indiscriminate removal of trees breaks the natural ridgeline and detracts from the natural beauty of an area. Structures placed on or near a ridgeline or on a hillside are more visible to others. The views available at a particular house site must be balanced against the desire of the Town to retain scenic areas and maintain agricultural and forestry resources. Thus, placement of structures, access roads, and utilities needs to be done carefully.

In past years, subdividers often created distorted lot shapes in order to minimize road frontage and still have parcels large enough (the former 10.1 acre “loophole”) to avoid state subdivision review. “Spaghetti” or “bowling alley” lots were the result. Though the reason for such large lots has gone away, due to revision in State septic permitting, there is still a natural tendency to minimize frontage. Such development has the potential to produce hazardous traffic problems, and resulting lot shapes can make management of forest and agricultural parcels nearly impossible. In addition, it reduces the availability of private land for recreational uses such as hunting, snowmobiling, skiing or walking.

One way to minimize lot sizes while preserving open areas in sizes and shapes useful for conservation, farming, or forestry is through the concepts of clustering development, including the use of Planned Residential and Planned Unit Development, and density. These provisions give a town the ability to permit the same number of units in total, but at greater densities in parts of the original parcel while less or none in the remaining areas. The purpose of this kind of development in rural areas, as stated in the Vermont Planning and Development Act, is “to encourage flexibility of design and development of land in such a manner so as to promote the most appropriate use of land, to facilitate the adequate and economical provision of streets and utilities, and to preserve the natural and scenic qualities of the open lands and forests in the town.”

Siting Policies:

- 1. Slopes steeper than 25% shall be permanently protected by forest or other erosion-resistant cover. Development on these areas shall be permitted only if it can be certain that such development will not be harmful to the environment or to the health of the community. Moderate slopes of 15-25% require special consideration to ensure development is planned in a manner which will not result in erosion or sedimentation.*
- 2. In all areas where soils have severe limitations, development shall be permitted only where it can be adequately proven that such development will not be harmful to the environment or to the health of the community.*

3. *While land use may change and become more intense, and while technology may make land alterations easier, the continued use of productive soils for agricultural and forestry purposes shall be one of the primary considerations in lot layout and building siting plans.*
4. *The preservation of open space along corridors between settlement centers shall be encouraged to preserve the attractiveness of the landscape.*
5. *Structures shall be placed downgrade of the ridgeline and constructed in a manner so as not to exceed (be taller than) the nearby natural or vegetative ridgeline as viewed from public vantage points.*
6. *Structures, roads and utilities on hillsides shall be placed to preserve agricultural and forestry land uses, as well as aesthetic quality.*
7. *If and when different land use is considered for open spaces, especially for fields, planners shall consider ways of preserving or maximizing agricultural, forestry and scenic potential. For example, dwellings, access roads, and utilities should be placed on the perimeter of the open space.*
8. *Clustering of buildings and multiple-use support facilities for preservation of acreage for agricultural, forestry or other open space purposes is highly encouraged. Encouragement may include appropriate incentives such as increased overall density when indicated.*
9. *As the majority of Hartland citizens have indicated their approval of the present arrangement, future development shall be guided by and related to the existing pattern of settlement.*
10. *The policy of the Town of Hartland is to control its rate of growth so as to promote orderly development with minimal stress upon available resources and municipal services. The impact of any development that would cause a significant increase in the growth rate shall be carefully reviewed.*
11. *As development occurs in the rural areas, it must not only respect the physical limitations imposed by topography and soil characteristics, but shall also be in harmony with the existing landscape and adjoining land uses.*
12. *The policy of the Town is to preserve open space of sufficient size for agricultural, forestry, and recreational uses*
13. *Major considerations in determining lot sizes and density shall include:*
 - *the existing pattern of development,*
 - *the provision and maintenance of roads, and*
 - *the proper installation and operation of sewage treatment systems.*
14. *The Town encourages use of density limits, versus minimum lot sizes, for dwelling units on large parcels particularly as a means to preserve agricultural land and other important resources.*
15. *The Town favors the use of cluster developments in suitable situations and locations.*

16. *The Planning Commission may consider up to a 25 percent bonus in density and other dimensional waivers for planned developments (PUDs or PRDs), provided the impacts of the increased density will not be detrimental to surrounding land uses or incompatible with resource protection.*
17. *Agricultural use alone should not be expected to provide for future open space. Hartland shall protect the rural character of the Town by providing for and encouraging areas of cluster development. The protection of open space by outright purchase or gift and by obtaining easements, especially in scenic areas and along natural waterways, is also encouraged.*
18. *Generally, one acre is to be considered the minimum lot size throughout the Town, with smaller lots of half acre if public sewer or water is available and one-quarter acre if both were available.*
19. *Mobile home parks should be located off of paved roads and may have smaller lot sizes and higher housing density than otherwise permitted.*

Siting Recommendations:

1. *Investigate and develop Regulations to guide future land use and the density of development, and to provide for the protection of natural resources. Such regulations would be presented to the Town for approval.*
2. *Continue to utilize the assistance of the Regional Planning Commission for land use planning and development.*

FUTURE LAND USE DISTRICTS**VILLAGE DISTRICTS**

Historically, the villages of Hartland Three Corners, Hartland Four Corners and North Hartland have had the most intensive development and these are proposed to be in two Village Districts. Each of these centers contains a variety of housing types mixed with small retail businesses, personal services and offices. These centers also contain recreational areas associated with the old schoolhouses.

Hartland Three Corners is the location of all municipal offices, the Town equipment garage, a fire station, and the Hartland Elementary School. Its location at the junction of U.S. Route 5 and Vermont Route 12, and its proximity to an interstate 91 interchange, have influenced its growth. In the last decade, there has been an increase in business activity in this village. The expanded availability of services to Hartland citizens has been of benefit to the community. Concentration of commercial activities in this area has been mostly a positive development, although improvements are needed to better accommodate growing numbers of vehicles and pedestrians.

North Hartland and Hartland Four Corners are also areas of relatively greater density containing predominantly single-family dwellings and a few commercial establishments. North Hartland has a fire station and a community water supply system with fire hydrants.

Future growth of these villages in a compact manner is closely related to greater public supply of safe water and the provision of sewage disposal. As activity increases in these centers, the need for ensuring appropriate traffic patterns, adequate parking and pedestrian safety also increases.

Near each village are farmlands that provide open space and benefit the community economically, as well as adding to the rural aspects of the whole area. It is this working landscape that is a major feature of Hartland's uniqueness. If the fields are lost to development, Hartland will be just another suburban town. If the fields are allowed to grow up to brush, then the Town becomes like so many rural places that lack the contrast of field and forest. Surrounding agricultural resources provide economic and aesthetic benefits to the community and help give each village its own identity.

Density in the villages is currently naturally limited by the ability of the soils to accept wastewater without causing groundwater quality to fall below drinking water standards. Care must be taken through density controls, careful siting of wells and on-site septic systems, upgrading and maintenance of septic systems, and water quality monitoring to protect this essential resource. The protection of surface and groundwater is very important.

Village District Policies:

1. *Business development should be encouraged in the village areas, but must be carefully reviewed to ensure that the activity will be conducted in a manner which would not be likely to result in undue or unreasonable adverse impacts on nearby residences or on town services and facilities and natural resources.*
2. *The scale of business development in the villages should be in keeping with that of existing businesses.*
3. *The development density in the Village Districts should be consistent with the existing village development patterns, unless and until provision is made for public water and/or sewer. For now, the land to be developed should have a one-half acre minimum lot size per principal building, when suitable for the installation and continued function of sewage disposal systems and water systems compatible with such density.*
4. *The Village of Hartland Three Corners should be the location of the Town's major commercial activity and should continue to provide most of the civic, cultural and educational activities.*
5. *All the villages should continue to accommodate a mix of housing types.*
6. *Commercial and service growth in the village areas should be focused primarily on serving the needs of the community. Appropriate types of businesses include offices, personal services, small retail and day care. It is not Hartland's desire to have these areas become regional development centers.*
7. *The characteristics of the villages that make them attractive, safe and practical places to live shall be preserved and promoted.*
8. *Future development of the villages should be a logical extension or infill of the existing village areas within the areas designated Village on the Future Land Use Map (see*

Appendix), but should not occur on prime agricultural soils or other critical resource areas such as stream banks or floodplains

9. *The type, variety and density of dwelling units in the villages should remain basically as they are now. Buildings over three stories, or 50 feet in height, or very dense concentrations of housing are contrary to the existing settlement patterns, and may unduly stress or threaten water resources or capability for sewage treatment.*
10. *Established village areas are an appropriate place for commercial growth.*

Village District Recommendation:

1. *The above policies should be incorporated into any future land use regulations or permitting decisions.*

US 4/VT 12 JUNCTION

The land along Route 4 east of Route 12 has some scenic views. The area includes important arteries serving regional and local traffic. At present, the intersection of these routes is dangerous because of occasional heavy traffic volume and inadequate sight lines, however, with careful planning, further development in this limited area can be done.

Small service businesses, small professional offices and inns are acceptable land uses for the Route 4/12 Junction Area provided that such uses are planned as relatively small in size or scale, are not primary or dominant uses in an area, do not unduly conflict with existing or planned residential, forestry or agricultural uses, and do not unduly affect rural character.

U.S. 4/VT 12 Junction Policies:

1. *Commercial (excluding primary retail and strip development) and additional light industrial development may take place in the proposed Route 4/12 Intersection Area along Route 4 east of Route 12, and in an area west of the intersection on the northerly side of Route 4. This would extend approximately 600 feet west of Town Highway 51 (Morrill Road) to the edge of a present field at an existing tree line. Land along Route 12 is not designated for this purpose.*
2. *Direct access to Route 4 in the proposed Route 4/12 Intersection Area must be limited for safety considerations. Additional access to Route 4 in the area northwest of the Route 4/12 intersection will add to an already busy and potentially dangerous traffic situation. Therefore, until the State of Vermont improves sight lines along this section of Route 4, access should be restricted to Town Highway 51. Proposed development that shares an exiting access may also be acceptable, but will need careful review.*
3. *Any proposal for development in the Route 4/12 Intersection Area that would result in a significant increase in traffic volume or significant change in the character of traffic shall be accompanied by a traffic analysis. This analysis must show that the proposed mitigation of the impacts of additional traffic would prevent any decrease in safety.*

4. *Development in the proposed the Route 4/12 Intersection Area should also be planned with respect for the natural beauty of the surrounding hillsides, the Ottauquechee River and the natural wetland areas that exist around this intersection. Commercial uses should not obstruct or compete with scenic vistas or view for driver attention. The nature of any proposed development should be consistent with the following attributes:*
 - *The over-all development should not be in conflict with the character of the surrounding area.*
 - *Development should not be one that could contribute to strip-type development that, by its nature, attracts similar businesses (this includes, but is not limited to, convenience stores, large chain retail stores and fast-food establishments.)*
 - *The character of any proposed development in the interchange area shall be consistent with the scale of existing buildings and similar in design.*
5. *Primary retail enterprises (including factory outlets, large grocery stores, fast food establishments, and shopping malls) are inappropriate in the US 4/VT 12 Junction Area. Such uses must locate within existing village centers. Primary retail enterprises that are located within village centers must be of a scale and intensity that fits with the existing development that is present.*
6. *Development that meets the definition of strip development is not appropriate in this area. This includes, but is not limited to, convenience stores, banks, large chain retail stores and fast-food establishments.*

US 4/VT 12 Junction Area Recommendation:

1. *The above policies should be incorporated into any future land use regulations or permitting decisions.*

I-91 INTERCHANGE AREA

Hartland's I-91 interchange at Exit 9 is one mile from the existing Hartland Three Corners commercial district. It serves many roles and provides many benefits to the Town and surrounding communities. Easy access is provided for commuters working in the job centers to the north (e.g., Hanover, Lebanon and White River Junction). Businesses are afforded a link to the northeastern population centers for shipping, deliveries and business travel. The interchange also serves as the region's gateway for many visitors to Vermont. Expanded tourism in the region can be expected to add to the numbers of visitors using this interchange. A park-and-ride lot is located at the southeast corner of the interchange to serve some of the needs of residents and visitors.

The interchange area is currently the site of several small low-intensity businesses of varied types featuring differing styles, layout and placement relative to Route 5. In recent years these have included an antique shop, small tourist cottages, a snowmobile sales center and a small trucking business. Most of these have grown up around existing older residences and farm buildings. Much of the land surrounding the interchange remains undeveloped pasture that serves as an important scenic resource, providing visual contrast to the highways. This variety is

one important component of the rural business area character that sets it apart from, and makes it more visually interesting and pleasant than commercial strip development that exists at many other interchanges. An area of particular interest for development at the interchange is at the northeast corner in a natural bowl situated at the rear of the Varney property near the terminus of a town road called 42nd Street. This area has good access to the interchange, yet has a natural setback and visual barrier that maintains the rural character of the area. This bowl could be an extremely suitable site for a variety of businesses (these include, but are not limited to professional offices, clean light industry, certain traveler services, farming heritage or other museums, and nurseries.)

I-91 Interchange Area Policies:

1. *In accordance with Vermont's so-called "Downtown Initiative," Town officials should encourage businesses compatible with village centers to locate there.*
2. *It is Hartland's desire to maintain a balance between the potential benefits to the community associated with the presence of the interchange, such as jobs and additional tax base that would result from increased business development, and the positive image of scenic rural Vermont that the gateway currently provides. At the same time, potential development must also be evaluated in terms of the additional cost to the Town for services.*
3. *Route 5 has been designated as a local bicycle route. It is important that shared vehicular access in the interchange area be used as much as possible in order to reduce traffic congestion and enhance vehicle, bicycle and pedestrian safety.*
4. *The principle guiding commercial development in this area should be compatibility with rural surroundings. Compatibility depends on both the character and nature of the use.*
5. *The nature of any proposed development should be consistent with the following attributes:*
 - *The over-all development should not be in conflict with the character of the surrounding community.*
 - *Development shall not adversely affect the vitality of the village center.*
 - *Development should not be one that could contribute to strip-type development that, by its nature, attracts similar businesses (this includes, but is not limited to, convenience stores, large chain retail stores and fast-food establishments.)*
 - *Development shall not affect the quantity or quality of water resources at or near the interchange. There is also a potential aquifer beneath this area and site design plans shall ensure protection of this important groundwater resource. Impervious surfaces shall be kept to an absolute minimum, thus reducing the potential run-off from a variety of pollutants.*
6. *The character of any proposed development in the interchange area shall be consistent with the following attributes:*
 - *Modest size of structures that are appropriate to the scale of existing buildings and similar in design*

- *Development design plans should maintain or enhance the scenic value of the surrounding rural landscape.*
 - *Limited lot coverage so open space can be maximized.*
 - *The hours of operation and nature and volume of traffic should/are not be disruptive to nearby residences. Preference should be given to development plans that are not 24-hour in nature and that feature low noise and limited lighting levels (e.g., low-level lighting that would be switched off by 11:00 p.m.) Design of development in the area should be in keeping with the rural Vermont business image and should enhance, rather than detract from, a visitor's positive impression of the scenic quality that makes Vermont an attractive place to live and visit.*
 - *Buildings and signage should meet design guidelines recommended for maintaining Vermont's scenic character and, as such, should not compete with the scenic views for driver attention.*
 - *Landscaping must be provided and varied in style, using native vegetation as much as possible. The landscaping plan should offer legitimate visual access to the business by the public; however, the plan must offer as much of a buffer as possible to enhance the scenic quality of the area.*
7. *Primary retail enterprises (including factory outlets, large grocery stores, fast food establishments, and shopping malls) are inappropriate in the I91 Interchange Area. Such uses must locate within existing village centers. Primary retail enterprises that are located within village centers must be of a scale and intensity that fits with the existing development that is present.*
8. *Development that meets the definition of strip development is not appropriate in this area. This includes, but is not limited to, convenience stores, banks, large chain retail stores and fast-food establishments.*

I-91 Interchange Area Recommendations:

1. *Develop a master plan for the Interstate 91 interchange area.*
2. *The above policies should be incorporated into any future land use regulations or permitting decisions.*

INDUSTRIAL DISTRICTS

Three areas are designated as appropriate for industrial growth. The purpose of the Industrial Districts is to provide for local employment opportunities of an industrial nature, to expand the tax base, and to enable commercial uses that specifically serve the industries or their employees.

As shown on the Future Land Use Map (see Appendix), the three areas designated for industrial use are in the northeast corner of town, in North Hartland south of North Depot Road along the railroad track, and along Ferry Road and Depot Road between the Interstate and the Connecticut River. Each of these areas includes or borders land currently used industrially and each is on the rail line.

The North Hartland industrial district straddles the railroad tracks south of North Depot Road (TH 16). This area consists primarily of two existing industrial properties - Netam Corporation and the North Hartland dry kiln. The proximity to the railroad and the history of industrial activity makes this use appropriate at this location.

The area designated for industrial use at Ferry Road is the largest of the three. Existing industrial uses include the Vermont Log Buildings plant, the Tri-State sawmill operation, and several sand and gravel operations, including one owned by the Town of Hartland. This site is isolated by the railroad tracks which run through it, 1-91, and the Connecticut River. A few residences are located in the area, most on the west side of the railroad. This area is appropriate for continuing or expanded industrial operations. Transportation is available via rail, or by truck from Route 5. Much of the area has been cleared or impacted by sand and gravel extraction, which may provide more area for industrial activities as these resources are exhausted.

On the Hartland-Hartford line and encompassing land in both towns is a large tract that has been used for many years for extraction of earth resources. The Hartland portion of the area is currently the site of a proposed regional landfill. This area is bordered on the west by the interstate highway and on the east by the Connecticut River, making visual and water quality impacts important considerations in project planning. To the south, a few residences are close enough to be negatively impacted by an increase in the intensity of use of the site. Most residences in this area of Hartland, however, are adequately buffered from activities at this location by a large wooded and farmed area to the south of the excavation and quarry, as well as by the Ottauquechee River.

This area is appropriate for continuing or expanded activities of the nature that currently occur or are planned, as well as other potential uses of an industrial nature. However, increased use of the area is currently hampered by inadequate access to the site. Heavy truck access site is currently through Hartford and there has been increasing concern about the impacts of this type of traffic on White River's residents and businesses. The size of vehicles that can access the site from Hartland is limited due to the presence of the weight restricted historic Willard Covered Bridge over the Ottauquechee River. Improvement of an existing access or development of a new one would help mitigate the impacts of expanded activity in this area.

Industrial District Policies:

- 1. Industrial development must be carefully reviewed to ensure that the activity will not be conducted in a manner which would be likely to result in undue or unreasonable adverse impacts on nearby residences or on town services and facilities.*
- 2. New industries shall be located within or adjacent to existing commercial and industrial areas, before additional land is developed for this purpose.*

Industrial District Recommendation:

- 1. The above policies should be incorporated into any future land use regulations or permitting decisions.*

RURAL RESIDENTIAL DISTRICTS

In areas surrounding the villages, a density of development has occurred that is somewhat higher than typically found in the rural areas, but lower than that found in the village itself. These areas have a greater distance between homes than in the villages, but more of a “neighborhood feel” than is typically found in the rural areas.

Rural Residential Districts Policies:

- 1. An overall density of one dwelling unit per five acre is in general considered appropriate in these areas although soil, slope conditions and other resource protection considerations may not permit this density at some locations.*
- 2. A minimum lot size of one acre per dwelling unit is appropriate.*
- 3. To ensure more appropriate lot configurations, a lot created in the Rural Residential District should have a minimum public highway frontage of 300 feet. Lots without frontage may be created and accessed by a 50-foot right-of-way so long as there is only a single access to such lots.*
- 4. Reduced dimensional requirements may be appropriate in the case of clustered development.*

Rural Residential Districts Recommendation:

- 1. The above policies should be incorporated into any future land use regulations or permitting decisions.*

RURAL DISTRICT

Maintaining the Town’s natural resource base, agricultural economy and forest industry are primary objectives of the Town Plan to be implemented through the Rural District. In these areas, only low density residential development with home occupations will allow these objectives to be met.

Rural District Policies:

- 1. Typically no greater than one dwelling unit per ten acres is an appropriate density in this District. However for preexisting lots greater than 10 acres and less than 20 acres with adequate soils, one subdivision should be allowed,*
- 2. Certain areas within the Rural District have a potential for development that may permit a 5-acre density as we have established for the Rural Residential district. They share the common quality of proximity to a paved road within a landscape of moderate development. These areas are Route 12, north of Hartland Four Corners, and the Hartland-Quechee Road. Since such development could worsen the functioning of intersections at US 4/VT 12 and US 5/VT 12 at Three Corners, special consideration should be given to the traffic impacts of such additional residential growth at these outlets.*

3. *Any new private road constructed off VT Route 12 or the Hartland-Quechee Road should be of limited length and not connect to other town highways so as to avoid fragmentation of forest, agricultural lands, or wildlife habitat, or create through traffic.*
4. *A lot created in the Rural District should have minimum public highway frontage of 400 feet. Lots without frontage may be created and accessed by a 50-foot right-of-way so long as there is only a single access to such lots.*
5. *Forestry, agriculture and related activities are encouraged.*
6. *Larger projects within the Rural District, including subdivisions of more than 5 lots, shall be configured such that at least 80% of land is left in contiguous undeveloped acreage. Locally enforceable permit conditions, conservation easements, or similar mechanisms on the undeveloped portion of the lot shall be required sufficient to maintain this land as open space.*
7. *Any development in the District on previously undeveloped hilltops or extending more than 800 feet into previously undeveloped lots, merits additional review and greater restrictions. Mandatory provisions shall include that no structures may break the natural tree canopy or disturb the silhouette of high points of land (as seen from public highways), and buildings not screened by vegetation will reduce their visibility through muted colors and less reflective materials.*
8. *Very large residential structures (over 5,000 square feet inclusive of incidental non-agricultural structures) should be subject to review under any future land use ordinance.*
9. *Subdivisions that keep more than 90% of the land undeveloped may have a density of one dwelling unit per 7.5 acres.*

Rural Residential Districts Recommendation:

1. *The above policies should be incorporated into any future land use regulations or permitting decisions.*

RIVER DISTRICT

The River District is a small strip of land along the downstream portion of the Ottauquechee River (as shown on the map) and Connecticut River that is meant to limit development that would either be in danger of being undermined by changes in the river, or would itself contribute to destabilizing the rivers' banks.

River District Policy:

1. *In this district, non-agricultural development activities shall not occur within 200 feet of the top of the bank. To the fullest extent practicable, natural vegetation shall be maintained within this buffer area to protect water quality, important habitat areas (wildlife, plants, aquatic habitat, and corridors), and the scenic value of the River. Other siting considerations related to the protection of ground and surface water resources are discussed in the Water Resources Chapter. Typically no greater than one dwelling unit per ten acres is an appropriate density in this district.*

SPECIAL LAND USES

TELECOMMUNICATIONS TOWERS AND SIMILAR STRUCTURES

The rapid proliferation of personal wireless facilities (cellular phones and similar technologies), and the need to locate such facilities at regular intervals to ensure continuity of service, also places the ridgeline landscape at risk, as ridgelines and hilltops are prime sites for such facilities. While the Town recognizes the industry's need to utilize the most efficient locations for such facilities, the Town also expects that the aesthetic integrity of the landscape will be maintained through the use of camouflage, co-location of facilities, and vegetative buffering.

Erection of commercial transmission towers and similar structures can greatly affect the rural characteristics of the town. Towers or antennas are not only unnatural during daylight, but they also often must have lights at night, which is not in keeping with the rural atmosphere. The proponent of such a project shall provide information demonstrating that the structure or facility will meet all applicable standards of the Federal Communications Commission (FCC) for health effects of radio frequency radiation. The proponent shall also provide to the Town appropriate financial surety to guarantee that the structure or facility can be removed upon discontinuation of its use.

Telecommunications Policies:

1. *Construction of visually intrusive transmission towers, antennas, and other structures, including personal wireless service facilities is discouraged.*
2. *Alternative sites in the region that already have towers shall be utilized if at all possible, thereby minimizing the visual impact of these structures. If alternative sites are commercially infeasible, then construction of such structures shall be done in the Town in a manner that minimizes their visual impact through the use of camouflage (e.g., inside a church steeple or disguised as a pine tree of appropriate height), co-location with existing transmission or telecommunication structures, and/or vegetative buffering.*

EXCAVATION AND MINING

The western bank of the Connecticut River in Hartland is the site and source of an extensive and extraordinarily valuable amount of gravel. This is a finite resource currently being extensively exploited by commercial extraction companies. It is also used by the Town of Hartland for the maintenance of its roads.

This resource borders one of New England's most beautiful rivers. The Connecticut River has been the focus of a careful cleanup campaign. It is important that the Town help protect the pristine quality of the Connecticut's waters. Safety concerns and the potential for disturbing the peace and quiet of residential areas are other considerations in regulating this activity.

Excavation and Mining Policies:

1. *The Town Ordinance prohibiting the mining and milling of fissionable materials is fully supported by this Plan. Other commercial and private mining and extraction projects*

shall be reviewed carefully for concerns of safety, traffic, noise and other environmental and social concerns, including aesthetics.

2. *Upon completion of excavation or mining such activities, the ground surface shall be left in a safe and vegetated condition as close to its natural surroundings as possible.*

CHAPTER 2: NATURAL, HISTORIC and SCENIC RESOURCES

INTRODUCTION

Natural resources include all of the raw materials on the earth that are needed to support life, such as clean water, healthy soil, and fresh air. They can be further expanded to encompass the many forms of plant and animal life including humans and the habitats they live in. As we continue to change the world we live in, the beauty of the landscape around us is increasingly being recognized as a natural resource. Features of our historical background tie us to the past and remind us of our evolving relationship with the natural world in ways that are important to our sense of our community and who we are.

The Natural, Historic and Scenic Resources Element is written with several objectives in mind. First, it is designed to provide Hartland residents with an overview of the importance of natural resources, including some of the benefits and challenges of conserving them. Second, it is to act as an introduction to many of the significant natural resources of Hartland. The third intent of this element is to identify what courses of action the Town could take to protect its natural and historic resources. Most importantly, this section of the Town Plan is created to assert Hartland's commitment to preserving the Town's rural character, scenic beauty, environmental health, and the exceptional quality of life that its residents have come to expect.

While natural resources are typically divided into a number of categories for management purposes, it is important to remember the interrelatedness of all aspects of the environment that supports us. As in any system an activity in one part of the environment can have broad reaching effects on others. For example, in New England during the 1800's heavy logging on hilltops and steep slopes resulted in soil erosion and increased runoff into streams and rivers. The increase in silt and runoff changed the character of the streams and rivers, negatively affecting the fish and wildlife dependent upon them. Further, flooding became a problem for cities and towns located along streams and rivers, since vegetation that once absorbed rainfall and stabilized banks has been removed. Therefore, although this element has been separated into several sections, the conservation effort should reflect the need to address natural resources as a whole.

This element of the Town Plan has four sections: historic resources; agricultural and forestry resources; natural areas, fragile areas, and wildlife habitat resources; and scenic resources. Water resources are considered in the next chapter. For each section of this chapter, a set of goals and policies has been identified with regard to protecting and preserving resources. Finally, a range of recommendations has been outlined as a means of attaining the stated goals in each section. While these policies and recommendations do not cover all of the possibilities for managing Hartland's natural resources, they serve as guidelines for developing solid natural resource conservation practices.

HISTORICAL RESOURCES

Hartland's recorded history began on July 10, 1761, when New Hampshire Governor Benning Wentworth granted a charter that divided the land into 71 equal shares. The grant was called Hertford, and that name continued until an act of the 1782 Legislature attempted to lessen the confusion with Hartford by changing the name to Hartland.

As set forth by Nancy Darling in a 1913 article in *The Vermonter*, the first recorded Town Meeting was held in 1767; another may have been held as warned in 1763 by the Subscriber Clerk of the proprietors, Oliver Willard. Seventeen sixty-three was also the year that Timothy Lull arrived with his family. He and others, however, may well have taken up land before then, perhaps immediately after the charter was granted. In 1778 the Town was first divided into school districts; that same year the first deed was recorded. By then the original grantees had been bought out by Captain Willard, who had confirmed the holdings of the various settlers; he also had prudently obtained confirmation of the grant by New York State. In 1780, a three-acre common was accepted by deed from Mr. Bugbee; this year is also commonly accepted as the date of the first church building.

Early Hartland had many separate settlements and a surprising number of industries and commercial establishments. Most of the settlements had a sawmill, a tavern, and a blacksmith shop. North Hartland had, in addition to an imposing woolen mill, two rope-walks, a place where handmade cloth was heckled with teasels (i.e. combed with a wire brush to make it more soft), as well as other establishments. Because sheep and cattle were raised extensively after the War of 1812, tanneries were set up. Broom manufacturing was carried on; at least two distilleries were active; there were foundries, additional woolen mills, a carding mill, gun manufacturing, a marble shop, grist mills, as well as hotels. Certainly there may have been others not mentioned.

The Town was also known for its fine agricultural and forest products. This tradition persists as Hartland farms continue to yield a variety of goods and some of the Town's best farmland remains in active production. Its forests still provide lumber and a number of wood products.

A date long impressed on Hartland school children was 1825, for in that year the town was honored by a visit from General Lafayette. The visit was recreated in a 1913 celebration.

Early Town records suggest an active road building program. Two roads leading from Windsor to Woodstock were established early. One passing through what is now called Fieldsville was called the County Road.

This brief review of Hartland's past provides us with excellent incentives to conduct our local affairs in a manner that will ensure that this town will continue to be an agreeable place in which to live and raise our families.

The emphasis of this Plan is to ensure that Hartland's rich heritage, including its historical, cultural, and scenic resources are maintained for future generations to experience. They include among others:

- houses, barns, mills, and other buildings,

- stone/masonry structures, such as walls, bridges, and foundations,
- covered bridges and railroad bridges,
- farms, hayfields, etc.,
- traditional recreation areas, and other picturesque sites, and
- cemeteries.

These features/resources lend Hartland its classic New England charm, provide its residents with an exceptional quality of life, and foster a strong sense of community identity. However, while the Town has been able to preserve its rural character to a great extent thus far, current trends in rural development indicate that Hartland will be challenged to do so in the future (refer to the **Land Use Section** of the Hartland Town Plan for more details). Therefore, by establishing these goals and policies, Hartland is stating its dedication to preserving and protecting the town's historical features.

Several programs are available to assist towns trying to retain these features, including Historic Preservation grants from the VT Division of Historic Preservation, the Preservation Trust of Vermont, and the Barn Again Program, a cooperative effort between the National Trust for Historic Preservation and the Vermont Department of Agriculture

Identification of Hartland's historical resources is a major step toward preserving the Town's character. In 1991 the Hartland Historical Society published "[In Sight of Ye Great River: History & Houses of Hartland, Vermont.](#)" This book serves as an excellent resource about the Town's historical features, as it chronicles the changing face of Hartland and its villages, as well as identifies the historical buildings and sites within the town. It exemplifies the Hartland Historical Society's commitment to the Town and its future, as it relates to its colorful past.

Historical Goal:

1. *Protection of historical resources within the Town.*

Historical Policy:

1. *Encourage a sense of connection between the town's past, present, and future.*

Historical Recommendations:

1. *Consider promoting activities which educate residents about the Town's history.*
 - a. *Support events such as Old Home Day which tie the Town's past to its present.*
 - b. *Sponsor walks or presentations that tour some of the historical sites in Town.*
2. *Consider assisting residents in protecting their historical homes, barns, and structures for future generations by educating residents about the Barn Again program and encouraging their participation in the program, as well as educating residents about the process of having their home/barn entered in the historic register.*

3. *Consider adopting ordinances, zoning regulations, and/or practices, such as establishing an advisory design review process, that may serve to protect Hartland's historical, cultural, and scenic resources.*

AGRICULTURE AND FORESTRY RESOURCES

Forestry and agriculture have played a major part in the history of Hartland and continue to do so today. Since Oliver and Aaron Willard built the Town's first sawmill along McArthur Brook in 1767, Hartland has seen a pattern of land clearing for crops or pasture (mainly for sheep) and timber harvesting for building materials, wood products, and fuel. As was the general trend in New England during the latter half of the Eighteenth Century and first half of the Nineteenth Century, much of Hartland was converted to farmland. After farming became less profitable toward the latter half of the Nineteenth Century and many farmers moved west, many of these fields and pastures returned to forest land.

Presently about 10% of the Town is in agricultural use. Much of the remaining area is forested. Both agriculture and forestry continue to contribute to the Town's economic well-being. Dairy products, (beef and veal), sheep, and hay are produced by Hartland farms. Horse-raising is another common farming activity within the Town. Aside from the lumber and wood products industries, the Hartland-Woodstock area is home to the region's largest concentration of maple syrup producers. Forested lands also support important wildlife habitat in the region. Both agricultural and forested land provides the residents of Hartland with exceptional scenic and recreational opportunities.

Land that is undeveloped, such as forest and farmland, is one component of open space. Besides playing a key role in the visual character of the Town, open space land provides wildlife habitat and migratory corridors for animals. Further, it is well-established that in the long run, open space can save the town money, since the tax revenues from developed property often do not cover the costs of providing services to it.

To maintain open space and preserve their land for future generations, landowners can choose to put their land in "current use." State and federal programs, such as the Vermont Use Value Appraisal Program, offer tax break incentives to landowners who enroll their property in current use land protection. The landowner can continue to use the property for agriculture or forestry, but agrees not to develop it. Some may argue that the Town loses money on land assessed under current use laws; however, any losses in revenue are made up in decreased expenses. While every new business or resident pays taxes to the Town, providing services to those people generally costs more than the revenues they generate. The costs of police and fire protection, utilities, and public education, as well as those associated with increased traffic and road maintenance (a substantial part of the Town budget), are among the problems facing growing towns. Thus, by limiting growth and preserving open space a town can keep its expenses down, while retaining its rural character. Recognizing the benefits of open space, Hartland residents had 11,010 acres of land listed under the current use program as of 2005.

Vermont's Municipal and Regional Planning and Development Act states that "preservation of the agricultural and forest productivity of the land, and the economic viability of agricultural units, conservation of the recreational opportunity afforded by the state's forests, streams, and

lakes, wise use of the state's nonrenewable earth and mineral reserves, and protection of the beauty of the landscape are matters of public good," and that "it is in the public interest to identify areas that have the potential to sustain agriculture and forestry and to develop ways for maintaining an active agricultural and forestry industry...".

Agriculture and Forestry Goals:

1. *Protect agricultural and forest lands within the Town, in coordination with regional planning and environmental objectives*
2. *Educate landowners about the benefits of agricultural and forest land as open space.*

Agriculture and Forestry Policies:

1. *Forestry and agricultural practices shall reflect the need to protect the Town's natural resources, including soil, water, and scenic resources, as well as wildlife habitat areas.*
2. *Given the economic, aesthetic, historical, and environmental value of Hartland's forest and farm land, continued efforts to protect and preserve these resources are critical to its well-being.*
3. *The Town should encourage and provide education on agriculture and forest management practices for the purpose of preserving the scenic, natural resources, and wildlife habitat values*
4. *Policies, procedures, laws, and ordinances should reflect the Town's commitment to reduce the likelihood of large scale development that would remove important farm and forest land from production.*
5. *Hartland encourages the use of the State "Best Management Practices" (BMP's) for forestry and agriculture.*
6. *Local conservation efforts will be coordinated with State and regional conservation and planning goals.*
7. *The Town should promote the well-being of its agriculture and forest-related enterprises.*

Agriculture and Forestry Recommendations:

1. *Sponsor workshops on soil conservation, land management, forestry practices, etc.*
2. *Create a public information area at the Town Offices which contains maps, pamphlets, and other documents related to natural resource preservation.*
3. *Assist interested landowners in conserving their property, including providing information and technical assistance to landowners interested in protecting their land through fee simple acquisition conservation easements, deed restrictions, and mutual covenants.*
4. *Educate landowners about the roles of Upper Valley Land Trust, Vermont Land Trust, and other conservation groups, and provide landowners with information on the Vermont Use Value Appraisal Program.*

5. *Support State, Federal, and private acquisition of land, through donation or conservation easements, to protect the Town's agricultural and forestry resources.*
6. *Maintain good relations with Federal and State agencies, local land trusts and conservation groups that could assist the Town in preserving its agricultural and forestry resources.*
7. *Work cooperatively with landowners, local and trusts, and conservation groups to acquire or protect high-quality resources.*
8. *Assist agriculture and forest-related businesses through participation in State, regional, and local programs. Support these enterprises by encouraging local retailers to feature products made in Hartland.*
9. *Any future zoning regulations should consider the needs of both the farm and forestry industries, such as allowing for roadside stands for selling farm produce, Christmas trees, etc.*
10. *Coordinate land use and conservation efforts with adjacent communities.*
11. *Use land protection programs, such as the Vermont Use Value Appraisal Program, to monitor and protect forest and agricultural land for the future.*
12. *Hartland should consider adopting regulations or zoning ordinances that promote protection of forest and farm land as open space and help landowners preserve their forest and farm land.*
13. *Consider assisting residents in protecting open space so as to preserve the agricultural and forestry traditions which have served to shape Hartland's history by educating residents about the benefits of open space, providing residents with information about the Vermont Use Value Appraisal Program, and working cooperatively with landowners and local land trusts and conservation groups to acquire high-quality resources.*

NATURAL AREAS, FRAGILE AREAS, AND WILDLIFE HABITAT RESOURCES

Hartland considers its natural and fragile areas, wildlife habitats, and the plant and animal species they support as important elements of the overall character and well-being of the town. The Town is committed to preserving these special areas and the wildlife they harbor. It has been known for quite some time that Hartland provides a home for rare species. The Eshqua Bog has been known as a site for rare orchids since the late 1800's and served as an early focus for the Hartland Nature Club, which was founded a century ago in 1907. Also, a specimen of Jesup's Milk Vetch (a plant in the pea family) collected in Hartland in 1891 was designated as the "type specimen" or essential example of this subspecies. A small population of this plant still grows here, one of only three known to exist throughout the world.

The Connecticut River, as it flows through Hartland, is one of the few remaining sections of this great river which are both undammed and undeveloped. Development along much of the river has severely affected the river floodplain, particularly the floodplain forests which provide habitat for many species. Thus the relatively untouched portion of the river in Hartland provides a last haven for a number of rare species of plants and animals. Biologists have noted for decades

that several species of freshwater mussels, having disappeared from much of the Northeast, are still found below Sumner's Falls.

State and Federal agencies provide protection for threatened and endangered species of plants and animals, as well as rare natural communities. Protected species occurring in Hartland include the Bald Eagle, Dwarf Wedge Mussel, Jessup's Milk Vetch, and Cobblestone Tiger Beetle. Rare natural communities considered worthy of statewide recognition include floodplain forests, riverside outcrops, river cobble shores, and fens. Further information about these efforts, including lists of threatened and endangered species and rare communities, can be obtained by contacting the Natural Heritage Inventory at the Vermont Department of Fish and Wildlife.

Other areas of critical concern include wetlands and deer wintering areas (deer "yards"). Wetlands are covered in the Water Resources element of this Plan, but include swamps, bogs, fens, marshes, and floodplains. Each of these support many plant and wildlife species and most serve an important role in flood prevention and maintaining water quality in rivers, lakes, and groundwater aquifers. They are often disturbed by nearby development or damaged by pollution and activities that affect the amount of water in them.

Deer yards are wooded areas consisting of mainly coniferous trees (softwoods such as hemlock, pine, etc.) that provide shelter from the heaviest snowfalls, biting winds, and frigid winter temperatures. Since snow tends to be not as deep under the canopy of softwoods, it is also easier for deer to search for food on the ground. Deer yards are typically near significant sources of food, such as stands of beech and oak trees that bear edible fruits, and generally have a southern exposure. Other important winter foods include the buds and twigs of saplings, particularly those of maples. Without such areas, many deer would not survive the long winter months. Thus, by protecting wetlands and deer yards, Hartland is both preserving the quality of its natural resources and providing important wildlife habitat.

Another major problem concerning wildlife habitat is the direct result of development pressures on the landscape. Many animals, particularly large ones, require unbroken areas of forest and field to satisfy their needs of food, shelter, and breeding and wintering habitat. Further, most animals have favorite travel corridors, or paths they use when migrating or searching for food. Breaking up or fragmenting wildlife habitat disrupts movement patterns, reduces the core habitat areas that are critical to wildlife communities, and may increase predation. For some animals a road may act as a significant barrier. Poorly sited housing or commercial development can have deleterious effects on many species of wildlife. Therefore, to prevent habitat fragmentation, the needs of local wildlife are important considerations when planning for and reviewing development with the Town.

Hartland, in the Green Mountain Piedmont, has a high degree of fragmentation in place, however across the north and west of Town (and adjacent towns) are larger hills that support larger blocks of land/with more stable and diverse wildlife. Functional connections among these blocks should be maintained in such a way to allow for wildlife dispersal and movement safely across large areas.

Narrow habitat connections may function more like a trap than a viable connection. Wooded habitat on both sides of the road for 1,000' or more is the model for wildlife movement. Some of this connectivity can be realized in the riparian zones of surface water and wetlands. Steep slopes adjacent to roads are also functionally useful for wildlife such as bobcats and bears. Guard rails can create a barrier to wildlife vision and safe movement.

Connectivity in aquatic habitats is important for fish and mammals such as otters. Fragmentation of aquatic habitats can occur in situations with dams or hanging culverts.

To maintain excellent wildlife habitat we will need to keep critical habitats functionally linked with larger blocks of habitats (forested lands and other natural communities). These large "core" habitats need to be bordered by compatible uses and need to be interconnected by unfragmented open spaces.

Our neighbor to the north, Hartford, has recognized the importance of keeping wildlife and critical habitat in Town connected within the township as well as to conserved lands, wildlife habitat and critical habitat in adjacent towns. This regional vision will be critical to keeping diverse and healthy populations of wildlife in Hartland as well.

Hartland's Conservation Commission serves several functions related to natural resource conservation. It provides residents with a source of information on the natural features of Hartland, as well as environmental issues facing the Town. The Conservation Commission represents its residents, providing them with a means to voice concerns about the environmental problems in the Town. It also acts as a watchdog for the Town, monitoring activities that may be detrimental to the health of its natural resources.

The Town has collected several maps showing the location of many of these natural features and habitats, including wetlands and water features, deer yards, locations of rare habitats and conservation land. These may provide useful information for individuals interested in wildlife and habitat conservation or those who are planning activities in or near these resources.

Natural Areas, Fragile Areas, and Wildlife Habitat Goals:

- 1. Protect natural areas, fragile areas, and critical plant and animal habitats (such as deer wintering areas and wetlands), including those of State and regional significance.*
- 2. Foster an appreciation among Town residents of the special natural and ecological features of Hartland.*

Natural Areas, Fragile Areas, and Wildlife Habitat Policies:

- 1. Land use planning goals shall be sensitive to the needs of Hartland's wildlife.*
- 2. Support cluster development, the use of existing roads and field lines, and the establishment of buffer strips along watercourses to reduce wildlife habitat fragmentation.*
- 3. Require adequate buffer zones when development is planned in the vicinity of rare and threatened species habitat, significant natural communities, or critical habitat.*

4. *Support State, Federal, and private acquisition of land, through donation or conservation easements to protect the Town's wildlife resources.*
5. *Hartland should take an active role in ensuring the preservation of rare and threatened species and their habitats, significant natural communities, and areas of critical habitat.*
6. *Encourage conservation of contiguous properties to maintain the connecting links and corridors for wildlife.*
7. *Installation of fencing, such as barbed wire, that would act as a barrier to wildlife movement is discouraged except when needed to retain farm animals.*

Natural Areas, Fragile Areas, and Wildlife Habitat Recommendations:

1. *Educate landowners about the importance of protecting, maintaining, and enhancing wildlife habitats. Provide support and encouragement for their efforts, as well as information about a variety of regional, State and Federal programs and incentives involving wildlife and habitat preservation.*
2. *Provide workshops and presentations on wildlife with an emphasis on preserving the Town's natural and fragile areas and wildlife habitats and corridors.*
3. *Create a public information area at the Town Offices which supplies maps, pamphlets, and other documents related to endangered and threatened species and wildlife habitat preservation.*
4. *Coordinate the Town's conservation plans with local (adjacent towns), State, and regional efforts to protect natural and fragile areas, wildlife habitat, and regional wildlife corridors.*
5. *Maintain good relations with Federal and State agencies, local land trusts, and conservation groups that could assist the Town in preserving its wildlife resources.*
6. *Work cooperatively with landowners and local land trusts and conservation groups to acquire high-quality resources.*
7. *Educate landowners, foresters, and developers about the importance of using buffer zones for wildlife habitat protection.*
8. *Propose adopting more specific ordinances, zoning regulations, and/or practices in the future that may serve to protect Hartland's wildlife resources, including developing performance standards, buffer zone requirements, or restrictions on activities that could adversely affect Hartland's natural and fragile areas and wildlife habitat.*
9. *Consider redirecting the proceeds from the State's Land Use Change Tax into the Town's Conservation Fund instead of the Town's General Fund.*
10. *The applicant for a major subdivision or site plan review projects should evaluate the impacts of their development on any identified core habitat areas if their project is located upstream or uphill in the same watershed of the core habitat area.*

11. *The Conservation Commission, in cooperation with other organizations, should identify existing core habitat areas within the Town, identify desired wildlife protection areas, and sponsor efforts to educate the public about the importance of protecting wildlife habitats and the importance of the interconnecting these habitats.*

SCENIC RESOURCES

The rolling hills of Vermont, dotted with picturesque pastures and forests of evergreens and hardwoods, have long captured the hearts of many. Nestled within the Connecticut River Valley, in view of Mount Ascutney, the Town of Hartland is one of characteristic beauty and New England charm. From both Interstate 91 and Route 5, travelers are treated to spectacular views of the valley and portions of the River, as it courses past Hartland.

Aside from the quiet, rural nature of the Town, Hartland offers a warm and inviting sense of community. Like most Vermont towns, Hartland is composed of several villages, including North Hartland, Hartland Three Corners, and Hartland Four Corners, each displaying a variety of architectural designs and scenic landscape features. These scenic characteristics are both part of the Town's history and a major reason why most have chosen to live here. Scenic vistas are very sensitive to activities such as intensive development and road construction. Therefore, to preserve the character of the Town, it is essential to ensure the future of these scenic resources.

Aside from the overall scenic beauty of the Town, Hartland has a number of natural and recreational areas to offer. The North Hartland Flood Control Dam and Recreational Area, Lull's Brook Fish and Game Area, Sumner's Falls, the Town Forest, Class 4 roads and trails, Eshqua Bog, and the Connecticut River are all available to Hartland residents. Swimming, boating, hiking, fishing, and nature observation are among the recreational opportunities these areas provide. Therefore, protection of these resources is very desirable as well.

Maintaining the scenic and recreational features of Hartland and preserving the character of the Town continues to be a challenge. Development at the intersections of major roadways or along their length may lead to sprawl if not monitored closely. Unprotected open space can be quickly sold off and subdivided, changing both the scenic nature of the Town and eliminating important natural resources. Activities along highly visible portions of rivers or hillsides, such as clear cutting of forests or development, can severely alter the beauty of Hartland. Further, poorly sited development atop hills, including houses, transmission towers, and power lines can all make the town less attractive for residents and tourists. Buildings, signs, and lighting which do not fit the traditional character of the Town can be an eyesore. Loud noises that aren't typically associated with regular activities in the town can also be aversive, such as the sounds of increased traffic or heavy construction.

Balancing the need for growth and prosperity in Hartland with that of sustaining the scenic character of the Town is an important task shared by the Board of Selectmen, Planning Commission, and Conservation Commission, as well as the residents they represent. The following goals, policies, and recommendations are aimed at providing this balance.

Scenic Goals:

1. *Preservation of Hartland's scenic and aesthetic resources, including recreational and natural areas, views and vistas, traditional land use patterns, and overall character*
2. *To foster a sense of pride in the scenic nature and rural lifestyle that Hartland offers.*

Scenic Policies:

1. *Open space and natural resources which relate to the historical, cultural, and scenic character of the Town should be preserved.*
2. *Growth or activities that would contribute to sprawling development along major roads and highways is discouraged.*
3. *The scenic value of ridgelines, hilltops, and hillsides should be maintained.*

Scenic Policies Recommendations:

1. *The Town should perform a scenic resources inventory to identify the important scenic characteristics in Hartland, particularly those at high risk of being lost.*
2. *Develop programs to foster a sense of pride within the town toward its scenic, aesthetic, and recreational resources.*
3. *Coordinate land use and conservation efforts with adjacent towns and cities.*
4. *Adopt specific regulations for transmission lines/towers, radio and telecommunications towers, and similar structures proposed at these sites.*
5. *Regulate siting, building activities, as well as associated lighting in these scenic areas.*
6. *Incorporate considerations of scenic, aesthetic, and recreational resources in future land use ordinances and regulations.*
7. *Incorporate the Vermont Scenic Road Handbook into a program for scenic beautification of Town roads.*
8. *Support State, Federal, and private acquisition of land, through donation or conservation easements, to protect the Town's wildlife resources.*
9. *Maintain good relations with Federal and State agencies, local land trusts, and conservation groups that could assist the Town in preserving its scenic resources.*
10. *Work cooperatively with landowners and local land trusts and conservation groups to acquire high-quality resources.*
11. *Include protection of Hartland's scenic, aesthetic, and recreational resources in the land use planning process.*

CHAPTER 3: WATER RESOURCES

INTRODUCTION

Hartland's water resources are a highly valued feature of the Town's landscape. The Connecticut and Ottauquechee Rivers, Lull's Brook and numerous smaller brooks contribute to the scenic environment and provide important habitat and a variety of recreation opportunities. In this chapter section, surface water resources, including rivers and brooks, floodplains and wetlands, are discussed, as well as the groundwater from which all of Hartland's water supply is drawn, and recommendations made for ensuring the values now provided are here for the use and enjoyment of future Hartland generations. Best management practices (BMP's) are discussed at the end of the chapter section as one approach for preventing much water quality degradation.

Although, for organizational purposes, topics such as wetlands and groundwater are presented in subsections, the characteristic of water resources most important to keep in mind is their interconnectedness. All water in the environment is part of one hydrologic cycle. Rainwater falling on the ground may become runoff to brooks or filter through the soil to become groundwater. Groundwater may reenter the surface waters via springs or seeps. A wetland may either discharge or recharge groundwater supplies. Because the water in one part of the hydrologic system at a given time may be part of another at a future time, the same is true for pollutants entering the system. Additionally, alterations to one feature of the system may lead to changes in another. Similarly, water resources know no political boundaries. Surface watersheds and groundwater recharge areas follow the topography and subsurface deposits of the land. Consequently, activities that take place in one community often affect the residents of another.

PLANNING SURVEY RESULTS

The results of the 1997 community attitude survey conducted by the Planning Commission show that Hartland residents and landowners place a high value on the Town's water resources. The "unpolluted natural environment" was rated by 59% of respondents as one of the things they like best about Hartland. "Opportunities for outdoor recreation", of which clean surface waters are a primary component, was another feature with a strong response (43% of responses).

The planning survey included a question listing natural and cultural features and asking which ones respondents would like to see local regulations to preserve or protect. Streams and rivers were indicated by the largest number of respondents (76%). Local wetland regulations were also supported by a majority (63%).

A similar question was posed to investigate local support for the expenditure of town funds for various objectives. Again, support for water resources protection came through as a priority. Aquifer/ground water protection received the highest rating (66%), with access to the Connecticut River not far behind (61%).

Taken as a whole, the survey results seem to reflect both a high regard for and awareness of the need to protect the Town's water resources, while supporting local regulations as one means for doing so.

SURFACE WATER RESOURCES

RIVERS BROOKS AND PONDS

All of Hartland is within the Connecticut River watershed. In the south/southwest portion of town, surface waters drain into Lull's Brook, which enters the Connecticut River east of the I-91 interchange. Tributaries include Cady Brook, Densmore Brook, Weed Brook, and Alder Meadow Brook along Route 12 south of Hartland Hill Road. Portions of the Lull's Brook watershed extend into Woodstock and West Windsor with only a small area in Windsor. In the north/northwest of Town, brooks and storm runoff enter the Ottauquechee River which joins the Connecticut in North Hartland just below the covered bridge and railroad bridge. Tributaries include Babcock Brook which follows Route 12 north from Hartland Hill Road and enters the Ottauquechee just beyond the VT.12/U.S. 4 intersection, and Fulling and Harlow Brooks which enter the River where it flows nearest to Clay Hill Road. In between the Ottauquechee and Lull's Brook are smaller brooks which flow directly to the Connecticut. These include Shepard Brook which follows Gilson Road to join the Connecticut just above Sumner Falls, and McArthur Brook which originates north of Mace Hill and enters the Connecticut just north of Vermont Log Building's mill on Ferry Road. Quite a few very small ponds are scattered throughout Town as well. Many of them are beaver ponds and so are constantly changing in shape and location. These small ponds are an essential element of Hartland's fire protection system as well as providing important habitat. Counting the Connecticut River, Ottauquechee River, and all of the brooks and ponds, Hartland has 84.3 miles of shoreline.

Surface water pollution can result from a variety of human activities within a watershed. In general, the closer the activity is to the shoreline, the greater its impact is on the surface water quality. The topography and associated land use patterns combine to make Hartland's brooks particularly susceptible to sedimentation and other pollutants carried by runoff. The topography of much of Hartland consists of narrow valleys surrounded by steep hillsides with shallow soils. These brook valleys provided a logical path for road-building and development.

Much can be done at the local level to prevent degradation of surface water quality. Shoreline protection, including vegetated buffer strips, and erosion and sedimentation control can both be used to reduce the amount of pollution that would otherwise enter surface waters as a result of a given development or activity. Siting structures and septic systems back away from surface waters, including streams, rivers, and ponds, can greatly reduce the level of nutrients and sediments entering the surface water. While some states have shoreland regulations, in Vermont it is left up to communities through local land use regulations. The only State regulatory provisions are the minimum isolation distance of 50 feet between leaching fields and surface water. A local shoreland regulation can address such things as septic systems, building locations, and maintenance of a vegetated buffer.

Maintenance or restoration of a natural vegetation buffer within the shoreline setback is equally important to water quality. The reasons for this are many and include: the shading produced by

the vegetation leads to cooler water temperatures which can contain more oxygen and so both supports a healthier ecosystem and increases the streams' capacity to assimilate wastes; the presence of the vegetation and leaf litter slows runoff so that sediments, nutrients, pathogens, and toxins are broken down and incorporated into plants, soil, and microorganisms before reaching the water; and soil erosion is reduced as woody vegetation and its root systems tend to hold soils in place.

While in general the larger the setback, the higher the level of protection, the optimal buffer width varies according to site characteristics such as soil type and slope, as well as the type and density of vegetation. Most communities find a set distance easier to implement than one which varies with soil type and slope. Studies have shown that, in most cases, the majority of pollutants (60% - 90%) can be removed within the first 100 feet of naturally vegetated buffer. The VT Agency of Natural Resources adopted Riparian Buffer Guidance (2005) recommends a minimum 50-foot vegetated buffer along the shoreline of all streams and rivers and 100 feet from all lakes and ponds. The guidance also calls for these to be increased in many cases to gain an adequate level of removal of most major pollutants. This recommendation is based on a review of the most recent scientific literature. Crucial to the proper functioning of a vegetated buffer for pollutant removal is the maintenance of healthy shrubs and ground cover.

Buffers larger than 100 feet are also required by many riparian species for breeding, foraging, and cover as well as for travel between larger undisturbed habitat areas. For large water courses important for serving the recreational needs of the region, such as the Connecticut and Ottauquechee Rivers, larger buffers may also be required to provide an adequate visual and aural screen depending on the nature of adjacent land uses. Riverbank erosion underscores the need to locate development a significant distance from these water courses.

Many people tend to think of shoreline protection as only important for large water bodies, such as the Connecticut River. However, an area of disturbance on the edge of a tributary stream with steep banks is apt to result in much more erosion and sedimentation than the same area would in a flat plain along a large river.

Many homes in Hartland are located close to brooks. Lull's Brook flows through two of the town's densely developed village areas, Three Corners and Four Corners. As noted previously, much development in town has followed the logical path provided by the brooks and so many homes are located close to these streambanks. It is recognized that the interests of property owners in expanding or redeveloping these residences must be balanced with the need to prevent further water quality degradation.

Use of fertilizers on farms and lawns along rivers and brooks can also be a significant source of nutrient loading to surface waters. The use of best management practices and nutrient management plans by farms and having naturally vegetated buffers can reduce these impact considerably

Erosion and sedimentation control and stormwater management are also other tools which can be used to decrease surface water quality degradation associated with development and other activities in the steeper areas along brooks. While special attention to shoreline development and

maintenance of adequately sized vegetated buffers prevents much sedimentation, development and other disturbances in the headwaters of a brook, which also tend to contain the steeper lands, can result in erosion and the associated sedimentation of surface waters.

Development on steep slopes is a significant source of sedimentation of surface waters for several reasons. The erosion potential is greater because the soils tend to be shallower in these areas and the volume and velocity of surface water runoff is higher. The resulting sedimentation can be associated with increased siltation and turbidity and increased nutrient and chemical loading. Areas with slopes over 15% pose a challenge to develop in an environmentally sound and cost-effective way. Land with slopes over 25% is often best left as open space due to the potential for erosion when disturbed. As shown on the Steep Slopes Map in the Appendix, much of Hartland is made up of slopes over 15% where extra precautions must be taken to ensure activities do not result in water quality degradation.

Runoff from roads and other impermeable surfaces often enters surface waters directly or via drainage structures and carries with it salt, sediment and other pollutants. Road maintenance activities such as ditch and culvert cleaning and bridge and culvert repair can be significant sources of stream sedimentation. The Vermont Roads Program and Natural Resources Conservation Service offer technical assistance for planning these activities in a manner which will minimize adverse impacts on surface water quality, including publications such as *Vermont Better Backroads Manual*.

Winter road maintenance is of particular concern. De-icing involves varying combinations of salt and sand, depending on the temperature and characteristics of the road and storm. Much of this material is eventually carried by runoff and melting snow to nearby surface waters. Out of concern for water quality, many advocate reduced use of salt in favor of sand. However, both have their disadvantages. While the chloride ions in road salt have been found to be toxic to certain forms of aquatic life, much of the sand applied to the road surface eventually ends up in roadside brooks or ditches and culverts that drain to brooks. An additional water quality impact associated with road salt is increased runoff that results when roadside vegetation is damaged and so unable to adequately stabilize the soil.

Because of this increased awareness of these problems, research is increasing into alternative de-icing materials. Calcium magnesium acetate (CMA) is an alternative made from limestone and acetic acid, the principal ingredient of vinegar, which has been found to be non-toxic to aquatic organisms and roadside vegetation. Although a full cost analysis which accounts for costs of road salt now incurred, such as those associated with vehicle corrosion and environmental damage, might show a saving with the use of CMA, the initial cost of the material is currently approximately 15 times that of road salt and so not yet feasible for most communities.

The Connecticut River has received much attention in recent years as an important regional, State, and national resource. The River has been the focus of the federal Conte National Wildlife Refuge and Scenic Byway Program, both providing opportunities for enhanced protection of certain resources in Vermont. Vermont communities have participated in New Hampshire's River Management Program through involvement in drafting the Connecticut River Corridor Management Plan. Most of these efforts have been led by the Connecticut River Joint

Commissions, who have also sponsored public programs on a variety of River-related issues and published educational material on water quality protection activities that can be undertaken by landowners as well as communities. The Connecticut is one of ten rivers federally designated nationwide as an American Heritage River.

Rivers and Ponds Goal:

1. *Maintain and improve the quality of Hartland's surface waters.*

Rivers and Ponds Policies:

1. *Landowners along the Connecticut River shall be encouraged and assisted to protect and restore a vegetated buffer a minimum of 200 feet wide to protect riparian species and other river resources, and to allow for the movement of the River through bank erosion.*
2. *The Town and State should provide ongoing opportunities for those responsible for road construction and maintenance to learn about cost effective methods for reducing the amount of polluted runoff that enters surface water from roads.*

Rivers and Ponds Policies Recommendations:

1. *Consider the adoption of shoreland regulations with setbacks between development activities, such as land clearing, construction, and septic systems, and Hartland's brooks and rivers. These regulations should enable expansion of existing structures within the setback with careful control of erosion and sedimentation.*
2. *Participate in and support efforts to educate landowners regarding issues such as the importance of vegetated buffers and the impacts of improper use of fertilizers on surface waters and the steps they can take on their own or with assistance from public and non-profit organizations to protect water quality.*
3. *Cooperate with landowners and conservation organizations to permanently protect shoreline buffer strips through conservation easements or other means.*
4. *As development pressure in town continues to increase, consider steps the Town can take to ensure that development is not sited or constructed in a way that will lead to erosion and sedimentation of surface waters including:*
 - *prohibiting certain activities on slopes over 25%;*
 - *regulating development to ensure that proper care is taken to prevent erosion and sedimentation during and after construction, particularly when development occurs on moderate slopes (15%-25%), through such means as requiring erosion/sedimentation control plans for the steeper portions of driveways and building sites;*
 - *adopting site plan review regulations to ensure that larger construction projects, including those involving reuse or redevelopment of a site, and those involving large impervious surfaces, appropriately manage stormwater and do not generate erosion and sedimentation during or after construction; and*
 - *adopting subdivision regulations to ensure that stormwater is properly managed.*

5. *Adoption of regulations addressing technical issues such as erosion and sedimentation control and stormwater management should be coupled with training for local board members and officials to enable those implementing the regulations to knowledgeably review plans and perform site inspections.*
6. *Amend the Highway Ordinance and Culvert Policy by adding standards to limit the grade of and control runoff from driveways that can themselves be a source of erosion problems.*
7. *Hartland should continue to coordinate with and participate in regional programs aimed at protecting the resources of the Connecticut River watershed including the Conte National Wildlife Refuge, the Scenic Byway Program, and activities of the Connecticut River Joint Commissions.*
8. *Continue to participate in Act 250 and other State permit application reviews to ensure that approvals are conditioned on proper water quality protection safeguards. This should include locating activities and structures an adequate distance from surface waters, with a larger setback distance in areas of steep slope or highly erodible soils; requirements for a detailed erosion and sedimentation control plan demonstrating proper controls during and after construction; a detailed stormwater management plan with appropriate stormwater treatment; and other recommended land use management practices.*

FLOODPLAINS

The FEMA Flood Insurance Rate Maps for Hartland identified floodplain areas along McArthur Brook, the Connecticut River, the Ottauquechee River and its tributaries, Lull's Brook and its tributaries including Alder Meadow Brook, and portions of Babcock Brook along Route 12 (see Floodplain Map in Appendix). These mapped floodplains cover only a small portion of the land area of Hartland. The lands surrounding the Army Corps of Engineers North Hartland Lake are controlled by the ACOE as part of the flood control dam project.

Floodplains fill an important need, as flood water must go somewhere, and can be very hazardous areas for most activities. Development in the floodplain can lead to property damage and risks to health and safety. Development in one area of the floodplain can also cause increased risks to other areas. If structures, or other impermeable surfaces such as paved parking areas, are located in the floodplain, flood levels will increase elsewhere and the limits of the floodplain areas are also likely to increase. Debris carried by the floodwater from one place to another also poses a danger.

Federal flood insurance regulations do not require that a community prohibit development in the floodplain, only that structures be elevated or flood proofed. However, these minimal requirements do not take resident's safety or the incremental effects of floodplain development into account, only the insurability of the structures themselves. Hartland's Flood Hazard Area Regulations protect residents by limiting floodplain uses to those which do not involve the erection of structures or otherwise deplete the flood storage capacity of the floodplain.

Floodplain Policy:

1. *Limit activities in floodplains to those compatible with flooding.*

Floodplain Recommendations:

1. *Continue to limit development in the floodplain to uses that would not pose a threat to health or safety if a flood occurs and do not involve the development of structures or alteration of the natural surface of the land.*
2. *Continue to update Hartland's Flood Hazard Area Regulations as needed to comply with FEMA's requirements for participation in the National Flood Insurance Program and to reflect new understanding of wise floodplain development.*

WETLANDS

Wetlands include areas such as marshes, swamps and bogs where water at or near the surface of the ground is a controlling factor in the development of plant and animal communities. Wetland functions typically include water quality protection, flood control, shoreline stabilization, contributions to groundwater and stream flows, and wildlife and fisheries habitat. In general, wetlands are not a dominant feature of Hartland's landscape. For the most part, Hartland's mapped wetlands of substantial size tend to be associated with brooks such as Alder Meadow, Babcock, and McArthur (see Wetlands Map in Appendix). Wetland values include storage of floodwaters, storage and adsorption of soluble nutrients that otherwise would contaminate downstream water bodies, discharge of water to water bodies during periods of low flow, groundwater recharge, filtration, habitat for many species that depend on wetlands for part or all of their life cycle, and recreational opportunities.

An Army Corps of Engineers Section 404 permit is required for many activities in wetlands. Additionally, through the Water Resources Board, Vermont's Wetland Rules are applied to most wetlands shown on the National Wetland Inventory maps. Uses allowed are those which do not involve any dredging, filling, grading, or other alteration of the water flow. When it can be shown that activities other than those specifically listed as allowed by the Rules will not have undue adverse impacts on the significant functions of the wetland, or that the impacts will be sufficiently mitigated, the Agency of Natural Resources grants conditional use determinations allowing the activity.

For Class I wetlands, considered exceptional or irreplaceable, a 100 foot buffer is regulated by the Wetland Rules. For Class 2 wetlands, which include all of those in Hartland covered by the Rules, only a 50 foot buffer is regulated. The Rules provide a mechanism for petitioning to have wetlands changed from Class 2 to Class 1 and to have greater buffer widths protected in certain cases. As is the case with other surface waters, as discussed above, a 100 foot buffer is generally recommended. Local wetland ordinances enable local review of proposed activities, protection of a larger buffer area than is protected by the state, and protection of any wetlands not regulated by the State.

A local wetlands inventory would be a good first step toward evaluating the resource and assessing protection needs. Several data sources are available as a starting point for mapping

including National Wetland Inventory maps, hydric soils and satellite data (see Appendix for NWI and Hydric Soils Maps). Several guides have been published to assist conservation commissions in inventorying and evaluating wetlands.

Wetland Goal:

1. *Ensure that the functions and values of Hartland's wetlands are maintained.*

Wetlands Policy:

1. *Wetlands are inappropriate areas for construction of buildings or septic systems or activities that involve alteration of the natural drainage patterns.*

Wetlands Recommendations:

1. *Conduct a local wetlands inventory to identify and evaluate wetlands and assess protection needs.*
2. *Work with land trusts and other conservation organizations to prioritize wetlands for conservation easements and other forms of permanent protection.*
3. *Consider adopting local wetland regulations limiting activities in wetlands and a 100 foot buffer zone to those that do not involve structures, filling or dredging. Protection of natural vegetation within the 100 foot wetland buffer zone should also be considered to reduce the impacts of surrounding land uses on the natural functions and values of wetlands.*
4. *In cooperation with government agencies and non-profit organizations, foster landowner education regarding the functions and values of wetlands.*

GROUNDWATER RESOURCES

Groundwater is water that is found in the ground in the pores of subsurface deposits. The term "aquifer" describes water-saturated earth materials from which a water supply can be obtained. There are three types of groundwater aquifers: stratified drift, till and bedrock. Stratified drift and till aquifers are composed of unconsolidated glacial deposits, while bedrock aquifers are fractures in solid rock. In stratified drift aquifers, the materials are sorted sand and gravel. In till aquifers, the materials are a gravel, sand, silt, and clay mixture.

Virtually all Hartland residents rely on a clean supply of groundwater for drinking, cooking, washing and other purposes. Approximately 250 North Hartland residents are served by the North Hartland Water Company well. The rest of the community relies on individual wells.

Groundwater resources in Hartland were mapped in 1976 by the USGS in cooperation with the VT Department of Water Resources. As shown on the Groundwater Availability Map in the Appendix, large areas of high potential for a public water supply were identified in the Three Corners/Four Corners village areas, surrounding the I-91 interchange, and along the Connecticut River from Lull's Brook to Sumner Falls. Smaller areas were identified at the entrance to the North Hartland Dam and along the Ottauquechee below Route 5.

Hartland residents, visitors and businesses, in addition to being dependent on groundwater as a source of potable water, are also dependent on the same groundwater for dilution of contaminants in wastewater. Therefore, great care must be taken to prevent hazardous substances from entering the groundwater and to limit development density to a level that enables adequate dilution.

In the past, chemicals used by homeowners and small businesses often ended up in the hydrologic cycle due to the expense and impracticality of proper disposal. Household hazardous waste collections provide a practical alternative to improper disposal. Greater Upper Valley Solid Waste District, and the Town of Hartford (at the recycling facility used by Hartland residents), provide education for consumers of all ages about alternatives to hazardous materials to reduce the amount of hazardous material in the waste stream.

While the State regulates underground storage tanks of 1,100 gallons and greater and requires testing and periodic replacement, no such oversight exists for tanks smaller than this. This means that leaks in residential underground oil tanks generally go undetected until a large quantity of oil has entered the groundwater. Studies have shown that the average tank will develop leaks within 15 years. This is of particular concern in densely developed areas where one property owner's leak could affect the wells of many others. Although the cost may seem substantial to the homeowner, replacement of an existing older underground home heating oil storage tank is relatively inexpensive compared with the exorbitant clean up costs and loss of property value associated with a leak.

Road salt is a potential source of contamination of private wells and potential public water supply aquifers. However, as discussed earlier, the alternatives such as sand and new compounds have drawbacks as well. Sand can damage streambeds and salt substitutes are not yet affordable by communities. Local and state winter road maintenance needs to be carefully planned in a manner which balances all of these issues.

Since all water supply in Hartland comes from groundwater, and most of that from private wells, all of the above uses occurring anywhere in town need to be carefully planned and monitored to ensure contamination does not occur. Best management practices regarding storage and handling of hazardous materials can minimize the risk of contamination. Business owner education is a key component of a groundwater protection program. For the business owner, following best management practices lowers environmental liability and minimizes the potential for clean-up costs.

Septic systems need careful regulation regarding slopes, soils and depth to bedrock to function properly and not result in contamination of groundwater. Both the State and Town of Hartland regulate septic systems to address these issues. Once installed, septic systems need to be maintained properly to continue effectively treating wastes. This includes having the tank inspected and pumped regularly.

Little information is available regarding Hartland's groundwater quality. The VT Health Department provides water testing at low cost; however, results are neither computerized nor geographically referenced to enable the resulting data to be used to identify problem areas.

Groundwater Policies:

1. *Ensure that groundwater quality is maintained for use by current and future Hartland residents.*
2. *Uses which are not appropriate in important aquifer areas due to the risk of contamination include:*
 - *any principal use involving the production, sale, storage, or transportation of fuel oil, gasoline, or other hazardous substances,*
 - *car washes,*
 - *disposal, processing, or recycling of hazardous substances,*
 - *septage lagoons,*
 - *snow dumps,*
 - *solid waste facilities,*
 - *storage of road salt or other de-icing chemicals,*
 - *subsurface wastewater disposal systems other than domestic wastewater and groundwater remediation systems,*
 - *transportation terminals,*
 - *underground storage of fuel or other hazardous substances, and*
 - *vehicle service and repair shops.*
3. *Other uses that may or may not pose an undue risk to water quality, but that warrant special consideration include:*
 - *cleaning services,*
 - *commercial agriculture and related activities,*
 - *excavations,*
 - *food processing facilities,*
 - *general service and repair shops,*
 - *laboratories and professional offices,*
 - *manufacturing facilities,*
 - *metal working shops, and*
 - *any use rendering impervious more than 20% of the lot area, and any other use which involves hazardous substances in quantities greater than those associated with normal household use.*

Groundwater Recommendations:

1. *Any future zoning and site plan review regulations should incorporate measures to ensure that existing and future private supply wells throughout town are protected from activities that are associated with hazardous substances. Local land use boards should closely scrutinize nonresidential land use proposals through conditional use and site plan review processes for potential adverse impacts on the groundwater. A zoning regulation should provide for a density of development and minimum lot size consistent with groundwater quality protection.*
2. *Development proposals should be designed to minimize the amount of impermeable surfaces and provide for on-site stormwater treatment to enable groundwater recharge.*
3. *Hartland should continue to participate in regional hazardous waste collections to provide a practical cost effective means of disposal and support educational activities aimed at reducing the amount of hazardous material in the waste stream.*
4. *Conduct a prominent landowner education program regarding the need to test underground storage tanks and replace old or leaking tanks and the need to properly maintain septic systems.*
5. *Consider protecting high priority potential future public water supply aquifers through an aquifer overlay district.*
6. *Since potential public supply well sites appear to be limited in Hartland based on available data, consideration should be given to additional testing and land banking a well site for future needs.*
7. *The Town and State should provide ongoing opportunities for those responsible for winter road maintenance to learn about safe, cost effective methods for reducing the use of road salt and cooperate with landowners and conservation organizations regarding the location of wells and sensitive areas.*
8. *Work with TRORC to seek funding for groundwater quality studies in Three Corners and Four Corners.*
9. *Support State and Federal funding to update aquifer mapping and provide that data in digital form for integration with other map layers.*
10. *Given the density of development in Hartland's village areas, a past MBTE contamination concern, and the fact that the same groundwater is used for wastewater disposal and drinking water supply, a study should be undertaken to ensure that current residents are drinking clean water.*

BEST MANAGEMENT PRACTICES

In many cases, the water quality impacts associated with development or other activities can be minimized if proper care is taken in how the activity is planned and carried out. Best management practices (BMP's), recommended land treatment or operational techniques to prevent or reduce nonpoint source pollution, have been developed for many activities and, if applied, ensure protection for a community's ponds, rivers and brooks, wetlands and groundwater. BMP's have been developed for many activities including:

- septic systems - to maintain proper functioning,
- road construction and maintenance - to control erosion/sedimentation,
- road salting and snow dumping,
- site development,
- excavations,
- logging,
- agriculture,
- stormwater management, i.e. from parking areas and roads, and
- use and storage of hazardous materials,

Although many BMP's seem like plain old common sense, having them in a written, organized format developed by experts in the applicable fields is helping to establish BMP's as the future industry standards regarding non-point pollution prevention. Information on BMP's is available from a variety of agencies and organizations.

BMPs Policy:

1. *Encourage and promote the use of best management practices to control nonpoint source pollution.*

BMPs Recommendations:

1. *Educate landowners about BMP's.*
2. *Encourage State regulators to incorporate BMP's in permit approvals.*
3. *Encourage conservation organizations and other holders of conservation easements to require agriculture, forestry and other activities to comply with BMP's.*
4. *Incorporate BMP's into future land use regulations as conditions of approval for applicable activities.*
5. *Ensure that BMP's are followed when required.*

CHAPTER 4: HOUSING

INTRODUCTION

Housing is both a reflection and a determining factor of the quality of life of Hartland residents. The supply, condition and cost of housing all have a great effect on our lives. This housing element will look at these three aspects of housing in the context of the regional situation.

HOUSING SUPPLY AND OWNERSHIP

The building boom of the 1970's and 1980's had a substantial impact on the Town of Hartland. The 1990 adjusted U. S. Census counted 1,287 dwelling units in Hartland, almost twice as many as counted in 1970 (658). This pace was much faster than the county or States rates of growth, but it slowed considerably in the 1990's. The 2000 Census reported 1,382 total dwelling units in Hartland. This represents only a 7% increase during the 1990's, compared with the 45% and 35% growth in housing experienced during the 70's and 80's, respectively.

Most of the housing in Town is available for use by residents, with only 5% categorized by the 2000 Census as seasonal; much lower than the county and State averages of 20% and 15%. A mere 19 units (1.4%) were available for sale or rent in 2000, indicating a very tight supply, but this was not too different from the State's rate of 1.9%.

The serious shortage of adequate housing in the greater Upper Valley area led to a 2002 study that attempted to quantify the need for more housing. The 2002 Upper Valley Housing Needs Analysis estimated that housing would need to be built at twice the rate it was in the 1990s to absorb projected growth in the Upper Valley, and that over 3,100 new units were needed immediately to address current shortfalls in housing supply. While it is not possible to allocate a certain number of these needed units to Hartland because housing is a "liquid" need of sorts (i.e. the demand for housing is related to jobs and could be filled by building homes in several towns), it is clear that the overall need for increasing the housing supply is present.

Some of this pressure may not be apparent to longtime residents who own their homes, as a housing shortage is most obvious to those looking for housing. Hartland's residents who own their homes have lived in their homes longer than the county or State averages.

HOUSING TYPE AND CONDITION

Like the rest of the region and State, Hartland's housing supply is primarily made up of single-family housing units, only more so.

HOUSING TYPE

Area	Single Family	Duplex	Multi-family	Mobile Homes
Hartland	69%	3%	4%	15%
Windsor County	54%	5%	11%	7%
Vermont	55%	6%	13%	7%

(Source: 2000 U.S. Census)

Although the percentage of multi-family units is well below the county average, the county average figure reflects high percentages in the larger job communities such as Hartford and Windsor that have public sewer and water. Hartland's figure is not atypical for similar sized communities.

The percentage of occupied housing units in Hartland that are rental units (20%) is also typical of other similar-sized communities in the region (see table below). The ratio of owner-occupied units to renter-occupied was the same in Hartland in 1980 as it was in 1990.

HOUSING COST AND AFFORDABILITY

A comparison of 1980, 1990 and 2000 Census results shows that rental housing costs for Hartland residents have been increasing rapidly, and that family incomes have not kept pace (see table below). This has also been true for the State as a whole.

MEDIAN RENT AND INCOME FOR HARTLAND

	1979	1989	1999
Median Rent	\$180	\$419	\$621
Median Family Income	\$18,806	\$34,877	\$55,354

(Source: U.S. Census, 1980, 1990, 2000)

The median house price for a primary home in Hartland in 1989 was \$114,250, and this had increased to \$134,750 a decade later. But by 2005 the median had exploded to \$191,500, clearly outstripping income gains. The median price for a vacation home was \$354,250, showing the price pressure that new or renovated housing for this market was having. These high prices for secondary homes drive less building of primary homes and loss of primary residences when they convert to vacation homes. What is even more amazing is the mean primary residence price in 2005 was \$302,385 and mean for vacation homes was \$641,208, both indicating there are some large prices in the upper range to skew the mean this high. Hartland's prices are slightly higher than the State and county averages for primary residences and much higher for second homes.

Lower income households forced to compete in the private housing market end up spending a disproportionate share of their incomes on housing costs, leaving inadequate funds for other basic necessities.

Two ways the needs of low income households are met are with rental assistance and development of local land use regulations that are sensitive to the needs of lower income households. Although there are no subsidized rental housing complexes in Hartland, Section 8 vouchers and certificates are available for Windsor County residents. Assisted rental housing is available in the surrounding communities of Hartford, Windsor, and Woodstock. Units are available to assist the elderly, handicapped, and the needy families. However, the waiting lists for assisted housing tend to be quite long.

Carefully planned land use regulations continue to be a primary way communities can provide for affordable housing. As Hartland considers land use regulations in the future, considerations should include reasonable lot sizes, encouragement of denser development near services where costs to the community are lower, and ample opportunity for the development of multi-family and manufactured housing. The new provisions for accessory units are yet another way that land use regulations can accommodate the need for affordable housing. Participation in regional economic development programs aimed at increasing income levels for current residents is another means for ensuring that housing costs can be met.

Housing Policy:

1. *Ensure the availability of safe and affordable housing to meet local and regional needs.*

Housing Recommendations:

1. *Plan for a wide range of housing alternatives for all income levels, abilities, and ages.*
2. *Ensure that future land use regulations allow a range of affordable housing opportunities through such things as adequate developable land zoned for residential use with reasonable lot sizes and equal opportunities for multi-family housing, manufactured homes, and accessory units. Ensure that any future land use regulations allow adequate opportunity for the development of rental and special needs housing as the growth of Hartland results in more diverse housing requirements.*
3. *Encourage cluster rather than tract development by granting density bonuses to protect open space and improve the efficiency of residential development design.*
4. *Promote efficiency in energy use and the provision of services by encouraging additional residential development to locate close to existing villages.*
5. *Through a combination of State and local regulation, continue to maintain the high level of the health and safety currently provided by Hartland's housing stock.*
6. *Allow density or other bonuses for the provision of permanently affordable units.*

CHAPTER 5: TRANSPORTATION

INTRODUCTION

Land use and transportation issues are interrelated. Land use, both within and outside Hartland's borders, drives the need for improvements to the transportation system. At the same time, local land use goals must be facilitated in part, by providing the necessary transportation facilities to accommodate growth where growth is desired. In addition, a given land use can have very different impacts on the transportation system depending on how it is sited and designed. Land use and transportation are both inseparable from a discussion of the town's economic well-being as well. Poorly planned land use patterns increase transportation costs and so the tax rate, whereas well planned development can add to the tax base of the town, providing additional funds for the transportation system. This section will focus on Hartland's highway system, as well as opportunities and needs related to alternative methods of transportation. Policies and recommendations specific to transportation issues are outlined at the end of the chapter.

PUBLIC HIGHWAYS

There are a total of 103 miles of highways and roads in Hartland (see table 8). Of this total, 24.7 miles are State maintained. These include Interstate 91 running north-south along the easterly edge of town, US Route 5 running parallel to I-91, and VT Route 12 running from the Three Corners Village to its intersection with US Route 4 in the northwest corner of town. Much development in town has occurred around these major routes. As roads providing access to much of the Town without impacting the local budget, they provide a benefit to the town and logical areas in which to encourage continued growth. The traffic volume on these highways is largely influenced by regional factors outside the influence of the town. For example, the route from I-91 Exit 9 to US 4, via US 5 and VT Route 12 route is utilized by a growing number of visitors to the Woodstock and Killington areas arriving from the south on I-91. A growing number of trucks also seem to be using VT Route 12 as a connector between I-91 and US Route 4. US Route 4 is the major east-west connector in this part of Vermont. Route 4 is the primary link between the interstate highway system and the Rutland area.

All State routes are subject to an 80,000 pound weight limit, with certain exceptions. The State highway weight limit for all trucks used to transport timber, milk or stone products is 100,000 pounds. Municipalities are authorized to establish their own weight limits for all local roads. All locally established weight limits must be reported to the State, so that they can direct truck traffic accordingly. Hartland has established a weight limit of 24,000 pounds on Quechee Road, but enforcement of the weight limit represents a problem. The revenues that the Town can receive from road use permits (\$5.00) is not sufficient to cover the enforcement cost for a dedicated officer and the cost for the portable scales needed to verify vehicle weights. Furthermore, the Town has no legal authority to enforce weight limits on VT Route 12. These constraints restrict the town's ability to prevent overweight trucks from using Route 12 as a means of bypassing the I-91 weight station north of Exit 9 when traveling between I-91 and I-89.

According to VT Department of Motor Vehicle (DMV) officials, the State can provide several types of assistance to municipalities in the enforcement of weight limits on local roads. First, the DMV provides two levels of training for local enforcement officers in weight enforcement. The first level focuses on the basic provisions of 23 V.S.A. 1391 governing enforcement of weight limits and is part of the basic officer training program. The second level provides more in-depth training, but requires a commitment from the community to apply the training. The cost of the training is borne by the State. Secondly, the State owns several portable scales which can be made available, on a rotational schedule, to local communities that participate in the second level of training. Finally, municipalities that enforce their own weight limits can receive the fines collected from weight violators (minus a \$6.00 handling charge) for use in covering enforcement costs.

Public Highway Mileages

Interstate Highway	8.5
US Highways (4 & 5)	8.4
VT Route 12	7.7
Total State-Maintained	24.7
Class 2 Town Highways	13.7
Class 3 Town Highways	61.6
Total Town-Maintained	75.4
Class 4 Town Highways (unmaintained)	3

Approximately three-quarters of the public highway miles in Hartland are town-maintained. Highway classifications determine the amount of state aid available to assist with repair and maintenance. The classes are determined jointly by the Vermont Agency of Transportation (VTrans) and the Selectboard. Criteria include traffic volumes, road conditions, and function.

Class 2 highways are the major connectors linking villages with each other and with state highways, and receive a higher rate of State aid than Class 3 highways. The Class 2 roads in Hartland comprise most of the Town's paved roads: Brownsville Road running from VT Route 12 at Four Corners to West Windsor and the Mt. Ascutney ski area; County Road branching southeast off the Brownsville Road to Windsor; Quechee-Hartland Road connecting Three Corners with Quechee (partially paved); and Clay Hill Road connecting North Hartland with Quechee via the Quechee-Hartland Road (partially paved). Like the state-maintained roads, the traffic on these connecting roads is influenced by regional as well as local factors, such as the type, size and location of various land uses. The Quechee-Hartland Road provides a convenient short cut for visitors to Quechee arriving on I-91. Clay Hill Road provides access to the North Hartland Dam recreation area, as well as an easy route for Quechee residents to reach the Hartford recycling center. Increasing traffic volumes and speeding on these roads have been a concern for residents.

Class 3 highways are other town roads that are maintained in a manner enabling them to be driven under normal conditions in all seasons by a standard car. As shown on the Transportation Facilities Map in the Appendix, most of Hartland's Class 3 highways are unpaved. Growing communities such as Hartland face a challenge to protect the attractive rural nature of back roads

while meeting the high expectations of a growing population, relative to road construction and maintenance. Both the Quechee-Hartland Road and Clay Hill Road have reached the point where they are no longer "back roads" even though they are only partially paved. This is both because of local growth and growth in other communities. In 2006, 1,400 vehicle-trips per day were counted on the Quechee-Hartland Road and 400 on Clay Hill Road. In promoting concentrated growth in adjacent village areas and providing for continued moderate density residential development along these roads, it is recognized that local growth will contribute to increasing traffic volumes. At a certain level of traffic, maintenance costs are significantly reduced by paving. According to the Vermont Local Roads Program, pavement of gravel roads should be considered when average daily traffic exceeds 400 to 600 trips per day. However, many communities use much higher traffic volume standards, depending upon a number of factors, such as average street grades, the percentage of heavy vehicles using the road, frequency of grading and repair, and other considerations. In general, there is no hard and fast standard to determine when a gravel road should be paved. General public attitudes in Hartland favor retention of gravel roads to the extent feasible. Unpaved roads help keep traffic speeds low and reflect a rural lifestyle that many residents desire to protect.

Hartland has only a few miles of Class 4 highway. The Town may maintain Class 4 highways but is not required to, with the exception of culverts. No State aid is available for work on Class 4 highways. It is the current policy of Hartland to perform no routine summer or winter maintenance on Class 4 roads, though bridges and culverts are checked periodically. As private lands are being subdivided further, and the interest in outdoor recreation increasing, these roads and trails are growing in importance as a public resource. Such town owned corridors will help insure that there will continue to be a place to enjoy access for snowmobiling, cross country skiing, walking, hunting, horseback riding, and other outdoor recreation.

In addition to Class 4 roads and legal trails, Hartland also may have "ancient roads", historic town roads or rights-of-way that are forgotten or long disused and not commonly known or shown on maps. However these roads and rights-of-way can still be owned by the town. With recent legislation (Act 178, 2006 session) towns must now act within the next several years to clarify if any such roads or rights-of-way exist. The Act provides a process to do this undertaking, a grant source for research, and a deadline after which any such roads or rights-of-way that have not been officially established shall terminate. The Hartland Selectboard has formed a committee to identify any such ancient roads in Town.

Highway maintenance costs represented an average of 42% of local expenditures (excluding school costs) over the last several years. This included winter maintenance, gravel resurfacing, repaving, reconstruction and work on bridges and culverts. Variations in the highway budget associated with major projects can have a significant impact on the tax rate. Hartland has an ongoing capital reserve fund for bridge maintenance and improvement projects and a Road Surface Management System (which will be discussed later in this section) to prioritize road surface improvement needs.

Traffic volumes and vehicle weight are the two most important contributing factors to highway maintenance costs. Local officials have raised concerns regarding perceived increases in heavy

truck traffic on US Route 5, VT Route 12 and other local roads. These heavy trucks contribute significantly to wear and tear on road surfaces.

Public safety should be the primary consideration when planning improvements to the Town's highways. Highway safety is a function of many factors. On back roads, narrow roadways and obstructed vision are often contributing factors to accidents. In developed areas, traffic volumes and speed are more likely to be involved. Local officials have observed that travel speeds have been increasing across the town in recent years, especially along unpaved roads. As concentrated development is encouraged in the village areas, highway improvements should incorporate traffic calming measures through design and layout and landscaping. Increasing traffic on main roads will necessitate diligent enforcement of speed limits.

The Three Corners intersection at Vermont Highway 12 and US Route 5 is an important highway improvement concern for the community. Although commonly referred to as the "Three Corners intersection," a third local road, the Quechee-Hartland Road enters the intersection from the north. The poor alignment and geometry of the intersection creates serious safety concerns. The intended travel lanes at the intersection are poorly defined (the intersection contains a dirt traffic island), thereby causing confusion over the proper approach for turning traffic. The Town has designated the village area surrounding the intersection as a growth center for the community. However, the poor design of the intersection and resulting vehicle/bicycle/pedestrian safety concerns impose serious constraints on the intersection's capacity to accommodate increased traffic volumes and turning movements.

SCENIC ROADS

US Route 5 is part of the Connecticut River Scenic Byway. This designation was based on a study of scenic, cultural, natural and recreational resources along the public highway corridors paralleling the Connecticut River in Vermont, New Hampshire and part of Massachusetts. The scenic byway status provides an opportunity for communities to obtain funding for a wide range of projects which would enhance the public enjoyment of these resources.

Vermont law provides for local scenic road ordinances to preserve the scenic quality of the rural landscape. Under 19 V.S.A. 2502, local municipalities have the authority to designate scenic roads. A request for local scenic road designation may be brought to the Board of Selectmen by the Planning Commission, or the Board of Selectmen may initiate scenic road designation by its own initiative. The Board of Selectmen must conduct a formal public hearing prior to designation. Once designated, local scenic roads must be maintained in accordance with the standards established by the State Transportation Board. However, the Board of Selectmen may request a variance from specific standards to address local needs and conditions. The Board of Selectmen also must notify VTRANS of any locally designated scenic roads.

Though local roads do not have this official scenic designation, Hartland has a policy regarding the maintenance and improvement of town highways which recognizes the importance of roadside trees and stone walls and can still be used to keep scenic attributes. This policy should be reviewed to identify opportunities to strengthen the role of public input in the planning process and to evaluate the need for a scenic road ordinance addressing specific roads. The first

step in this process would be to inventory the significant features along potential scenic roads which contribute to their scenic nature. These include forest and agricultural patterns, significant viewsheds, terrain, and special natural and man-made features including stone walls. Examples of roads which should be considered include Clay Hill Road, Jenneville Road, Advent Hill Road, Town Farm Road, Weed Road, Garvin Hill Road, and sections of US Route 5 southeast, southwest and northwest of the I-91 interchange. A scenic road ordinance does not regulate adjacent land use. Scenic easements are one possible method to explore for ensuring the future enjoyment of these important viewsheds by the public.

PRIVATE ROADS

Land use regulations are needed to ensure that private subdivision roads are designed safely and properly constructed and maintained. The safety of occupants and emergency personnel depends on proper road design and maintenance. The Town currently enforces standards for new public roads, but there is no legal mechanism in place to apply the standards to privately-owned and maintained roads which may be dedicated to the Town in the future. Subdivision regulations can be used to apply town road standards to all new private roads and rights-of-way. Furthermore, the current road standards should be reviewed for adequacy based on recent application.

DRIVEWAYS/CURB CUTS

Proper siting and design of the access points of driveways is required to ensure the safety of users as well as that of drivers and bicyclists on the road, as well as pedestrians. Adequate sight distances are essential. Drainage from a driveway is also an important issue as improperly directed stormwater runoff can damage adjacent roadways and contribute to pollution and sedimentation of nearby streams and rivers.

Access to private property from highways and local roads is an important issue to consider when assessing the potential impacts of future development. Access impedes mobility and can decrease safety. Single access driveways to multiple lots should be encouraged on new development. This highway management principle often conflicts with prevailing market forces which encourages intensive commercial development along major thoroughfares. Communities can help minimize the impacts of strip development and sprawl on highways by concentrating future development activity in existing village centers and/or specific "nodes" along local roads, where adequate infrastructure exists or can be provided to support intensive development and natural constraints to future development are minimal. Communities also can apply specific access management techniques designed to reduce the number of curb cuts or driveways needed to serve roadside development. These techniques include:

1. Requiring driveways to serve adjoining lots;
2. Prohibiting curb cut access from the main thoroughfare for corner lot properties;
3. Requiring off-street access and traffic circulation to adjoining parking lots in commercial areas;
4. Imposing restrictions on the width and placement of curb cuts on major highways;

5. Requiring specific setbacks from road intersections for all new curb cuts; and
6. Requiring subdivisions adjoining major thoroughfares to provide internal street access only for all lots fronting on the thoroughfare. The resulting lots would have double frontage (along the front and rear yards.)

PARKING

As development continues to concentrate in the village areas, parking will become an increasingly important consideration. The existing level of business development at Three Corners has resulted in an unsafe situation with people parking within the intersection area. Regulations are needed with provisions for adequate off-street parking for all new land uses throughout the town.

PEDESTRIANS AND BICYCLISTS

A primary benefit of mixed-use villages where development is concentrated is the reduction in automobile use. By locating stores and services, public facilities and high density residential development in close proximity, many residents are able to walk for trips that would otherwise require driving. It is essential that plans for the future development of the village areas incorporate an adequate system of sidewalks, crosswalks and pedestrian paths. Much improvement is currently needed in this area. Three Corners has one sidewalk on a portion of VT Route 12. Although the school is in close proximity to the village, there is no sidewalk or pedestrian path to reach it safely. The roadway between the village and school has poor visibility and no bike lane. There are no sidewalks or crosswalks in North Hartland or Four Corners. There is currently a lot of pedestrian use along US Route 5 in North Hartland and Four Corners. Bicycles and small children are frequently in the traveled way, creating an unsafe situation for both pedestrians and drivers. Much can also be done to better accommodate bicyclists outside of the village areas. Bike lanes are currently needed along state highways to safely accommodate existing use. Many bicyclists now use US Route 5; however, shoulders are narrow and in disrepair, forcing bicyclists to use the traveled way.

PUBLIC TRANSPORTATION

The only current public transportation provided in Hartland is through Connecticut River Transit, which has a scheduled stop at the Exit 9 Park and Ride lot. Stagecoach provides on demand services for special populations.

AIR

Hartland has no airport. Its local airport needs are served by the Lebanon, New Hampshire Airport. Improvements to this airport have been increasing its capacity for both passenger and freight service.

RAIL

Hartland has active passenger and rail lines along the Connecticut River. There is no passenger rail stop in Hartland, but stations for service on AMTRAK's *Vermont*, which travels north to St. Albans and south to Washington, D. C. are located in White River Junction and Windsor. Freight rail service is available in Hartland along the same main line. Any business or industry locating along the line may request service. Two railroad sidings are available for future use in the Ferry Road industrial area. While no businesses in town currently utilize freight rail service, Twin State Sand and Gravel has considered it as a means of shipping granite and gravel to markets outside Vermont. Rail service can be an economical means of shipping freight. Each rail car can ship the equivalent of approximately 5 tractor trailers by weight.

Transportation Goal:

1. *Provide and maintain a safe, efficient and cost effective transportation system which meets the needs of the public in a manner consistent with the other goals, policies and recommendations of this Town Plan.*

Transportation Policies

1. *Development in Hartland on the State and Federal routes must be planned for compatibility with the role of these routes in the state's transportation system. At the same time, the State's plans should take the Town's concerns into account.*
2. *Public input must be considered prior to decision to substantially change the maintenance level or surface treatment of a town road.*
3. *When determining which roads to pave and when, the town should evaluate traffic volume and maintenance costs against other factors, such as the up-front cost of paving and base improvements that may be necessary to support a paved surface and the potential quality-of-life impacts to residents.*
4. *Expenditures for bridge maintenance and improvement projects should be based on a detailed survey of bridge conditions followed by a long range plan for rehabilitation and replacement. State aid is available to help offset the cost of this survey.*
5. *Integrate land use and transportation planning by encouraging concentrated growth in areas served by an adequate highway system, utilizing land use regulations and appropriate highway access management techniques to control the impacts of development on the transportation system; and making transportation improvements in areas where growth is desired a priority.*
6. *Vehicle access to adjoining properties should be minimized, and other access management techniques are encouraged during new development along major highways to reduce driver confusion and traffic congestion and to minimize conflicts between through and local (turning) traffic through provisions on further subdivision in new access permits.*
7. *Work cooperatively with other communities in the region through the TRORC and its Transportation Advisory Committee to ensure that the region's transportation system is*

developed in a well-coordinated manner that recognizes and balances the needs and desires of each community.

8. *Consider the relationship of a road to surrounding features of the landscape when planning improvements needed to safely accommodate increasing traffic.*
9. *Walking in the village centers is important and a design for a pedestrian/bicycle network in each village area should be developed now so that funding for improvements can be sought and future development can be adapted to the plans.*
10. *Widening of roadways to accommodate safe use by bicyclists should be combined with traffic calming measures and enforcement of speed limits to ensure that unsafe speeds do not result.*
11. *Bike racks should also be incorporated into plans for key destinations. Major employers should be encouraged to provide covered bike racks through the site plan review process.*
12. *Ensure that plans for development address the need for adequate off-street parking.*
13. *Ensure Class 4 roads, trails, and other public rights-of-way remain as public resources.*
14. *Existing pedestrian access and connections shall not be impaired by future development.*

Transportation Recommendations:

1. *Work with VTrans and TRORC to plan improvements to the Three Corners intersection, with strong consideration given to traffic flow that involves continual movement and minimal stopping, such as a roundabout, avoiding traffic lights or signals which force stopping and accelerating and create negative air, vibration, and noise impacts.*
2. *Work with VTrans and TRORC to implement an ongoing traffic count program on state and major town highways to monitor the volume and type of traffic.*
3. *Work with VTrans and TRORC to ensure that improvements to the state highway system are sensitive to the desires of Hartland.*
4. *Explore the possibility and desirability of utilizing weight limits and other design tools as a means for controlling truck traffic on local roads. Consider prohibiting through truck traffic on local collector (Class 2) roads to keep existing truck traffic on VT Route 12 and US Route 5. Changes to signage and continued efforts toward better access management along US Route 4 in Hartland should also be considered.*
5. *Review and update the Town policy regarding upgrading Class 4 roads and private roads to Class 3 town-maintained roads to ensure that:*
 - *adequate road construction standards are followed;*
 - *the landowners are required to pay for bringing the road up to Town standards; and*
 - *input from the Planning Commission is incorporated in the Selectboard's review and decision process to ensure the changes would be consistent with the Town plan.*
6. *Conduct an inventory of potential scenic roads throughout Hartland. Review the current "Policy on Maintenance and Improvement of Town Highways" and consider the adoption of a local scenic road ordinance.*

7. *Pursue State and Federal sources of funding such as Scenic Byway Grants and Enhancement Grants for projects which would further multiple objectives.*
8. *Review and update the Town's driveway regulations and road standards to ensure that safety and drainage issues are adequately addressed. If the Town adopts subdivision regulations, incorporate appropriate requirements to ensure that new private roads and rights-of-way will be constructed to town road standards.*
9. *Identify any “ancient roads” in the Town and decide if they should be kept for transportation or recreational needs.*
10. *Plan a system of sidewalks, bike and pedestrian paths within the villages, linking them with schools, recreation areas and other public facilities.*
11. *Ensure pedestrian safety by providing clearly marked crosswalks in village areas with adequate advance warning for drivers, including the possibility of pedestrian-activated crossing lights.*
12. *Encourage VTrans to include bike lanes, coupled with appropriate striping, signage and traffic calming measures, when improvements are made to State highways.*
13. *Encourage Advance Transit and other bus systems to monitor the demand for bus service in Hartland and increase service when warranted.*
14. *Encourage carpooling through ensuring that ride-sharing information is readily available to residents and promoting use of the Park & Ride lot at Exit 9.*

CHAPTER 6: ENERGY

INTRODUCTION

Vermont Planning law requires that town plans include an energy plan for the town. Energy costs are a major factor of the cost of living, both for residents and town government. A good energy plan, when implemented, can bring about positive effects both economically and environmentally. Sensible energy conservation can reduce energy costs both directly and indirectly - by reducing energy consumption, as well as reducing the need for utilities to build costly new facilities.

There have been dramatic reductions in the amount of energy required per unit of gross domestic product over the last 25 years. The trade-off between energy consumption and economic well-being that was formerly assumed to be unavoidable has been altered by a combination of technological advances and widely adopted conservation measures. The benefits of increased energy efficiency have been felt both in the reduction of the rate of increase in energy costs, as well as in the reduction of environmental pollution. Wise use of energy benefits us all.

ENERGY RESOURCES

According to the Vermont Comprehensive Energy Plan (1998), the major fuel consumed for energy in Vermont is oil, and the largest use of fuel is not for heat, but for transportation, which consumes nearly half the energy. The other large form of energy is electricity, one third of which is generated by the Vermont Yankee nuclear plant in Vernon and another third is supplied by HydroQuebec. Yankee's license and the HQ contract both expire in 2012, making the large electrical energy picture uncertain and offering a good reason to pursue energy conservation. Another very good reason to try to lessen our energy use is global warming, which is increasingly certain and may have serious consequences if not addressed soon.

On the local side, residential heating oil and gas are provided by a number of companies in surrounding towns. None are located in Hartland. Gasoline is provided by one gas station in Hartland Three Corners, with numerous other retailers in surrounding towns. Electricity is provided by two utilities - Green Mountain Power in the area of North Hartland, with the rest of the town being served by Central Vermont Public Service Corporation. There are three small hydroelectric power producers. Two are on the lower portion of the Ottauquechee River in North Hartland; the other is on Lull's Brook near Hartland Three Corners. Electric power produced by these plants is fed into the regional electric grid.

Wood has traditionally been an important source of energy in Hartland, both for heating and for maple sugaring. Harvesting of firewood can be an important part of sound forestry practice. Locally produced firewood reduces the need for imported energy and keeps the economic activity associated with energy production in the local area, rather than sending the money elsewhere.

A number of new energy technologies hold the promise for a more sustainable energy future. These include the steady decrease in the price and increase in production of solar cells and the move by automotive manufacturers toward fuel cells and "hybrid fuel" vehicles. Small-scale electric production at the local level may be economically feasible in the not-too-distant future, greatly reducing the energy losses associated with power transmission as electricity is moved from the power plant to the end user.

Major savings in energy use can also result from directing development patterns. Concentrating development provides a number of benefits to the town; it preserves agriculture land and the rural character of the town, provides services and facilities within close proximity, which reduces transportation distances and allows for the greater use of alternative transportation such as walking and bicycling. Concentrating development also facilitates greater use of public transportation and carpooling.

Energy Goal:

1. *The conservation of energy resources, and the use of renewable and alternative sources of energy that do not have a net contribution to greenhouse gas emissions are encouraged.*

Energy Policies:

1. *Energy needs will be met through sustainable sources that are as local as possible.*
2. *Development patterns and the siting and orientation of new buildings in a manner which will conserve energy are encouraged.*

Energy Recommendations:

1. *All new residential development in the Town of Hartland shall conform to the VT Residential Building Energy Standards (Act 20, 1997). These standards provide for energy conservation in windows, fixtures, appliances and construction.*
2. *Town-owned facilities shall be as energy efficient as possible and repairs and renovations shall consider energy conservation measures.*
3. *The use of renewable and alternative sources of energy should be encouraged when new development is considered in Hartland.*
4. *The placement and orientation of buildings on a site can have a major impact on energy use. Attention to design details such as southern exposures, thermal mass collection and appropriate heights and distances from other buildings to allow solar access, should be encouraged.*
5. *Settlement patterns and densities that reduce travel requirements should be encouraged when new development is considered.*

CHAPTER 7: UTILITIES AND FACILITIES

INTRODUCTION

Hartland's town government provides (or contracts for) services and facilities funded by property taxes. The Town's Selectboard and Town Manager determine budget recommendations to fund these. Separately, the Hartland School District provides educational services and facilities and develops the budget for this. Registered voters consider these recommendations and vote on them annually at Town Meeting. Hartland has experienced significant population growth in the past ten years and projections suggest that this will continue. As the population increases, residents may raise their expectations of services that the town should provide. The major goal facing town officials is balancing growth so that the costs of services do not increase disproportionately faster than the tax base.

TOWN GOVERNMENT AND OFFICES

Hartland is governed by a five-member Selectboard who are elected at Town Meeting for two or three year terms. Paid administrative staff includes a Town Manager, Clerk, Assistant Clerk, Treasurer, Assistant Treasurer and three Listers. There are two appointed Town commissions - the Hartland Planning Commission and the Hartland Conservation Commission.

Town offices are located in Damon Hall, an historic building constructed in 1915 and located in the center of Hartland Three Corners. The Town's records are protected there in a fireproof vault. Meeting space is available for town commissions. The building contains a fully equipped kitchen and dining hall on the basement level and an auditorium on the first floor (with balcony). Town offices and the auditorium are handicapped accessible. There are two toilets located in the basement level. The Hartland Nature Club and Hartland Community Arts are also housed in the building. As the town's population increases, there will be additional needs for more office and storage space, as well as the need for additional parking. Improvements that may be necessary include adding toilets, making the second toilet handicapped accessible, and a ventilation system for the auditorium.

FIRE PROTECTION

Hartland has a Volunteer Fire Department that consists of two stations - one in the village of North Hartland on the Clay Hill Road (just off Route 5), and one in Hartland Three Corners, west of the village on Route 12. Fire personnel include a chief, assistant chief, secretary, treasurer and approximately 20 volunteer firefighters. The Town's primary mutual aid towns are Hartford, Woodstock, Windsor and West Windsor. The two stations maintain the following equipment:

Type of equipment	Year of manufacture
Ford L800 Tanker	1990
International Tanker	1996
E1 Pumper	1997
Chevy 1 ton E1 Mini Pumper	1999
E1 Pumper	2005

The Hartland Volunteer Fire Department personnel realize that the best fire protection is prevention. Citizens are required to obtain permits for outdoor burning (burning of trash is not permitted). The Department also maintains a listing of existing ponds and other sources of water that can supplement tanker capacities, as needed. There is a need for an additional emergency vehicle for road and forest rescue. The other existing equipment is considered adequate for the next five years.

RESCUE SERVICES

The Hartland Rescue Squad is located within the Hartland Volunteer Fire Department's station at Hartland Three Corners. The Squad maintains a fully equipped Chevrolet Suburban. The Rescue Squad is sufficient for the Town's needs at this time. The towns of Woodstock, Windsor and Hartford provide ambulance service.

EMERGENCY DISPATCH AND ENHANCED 911

Emergency dispatch for both fire and ambulance emergencies is handled through the enhanced statewide 911-dispatch center.

POLICE PROTECTION

Hartland residents have police protection through several sources, including the Vermont State police in the Royalton Station. This outpost covers 22 towns and trooper staffing levels do not always ensure an immediate response, especially after midnight. With this in mind, Hartland voters approved a yearly contract with the Vermont State Police to patrol the roads for 25 hours per week. The Select Board annually reviews this contract and makes modifications as deemed necessary. The Town also has an elected Town Constable who is available on an "on-call" basis to handle certain violations and assists other law enforcement officials in emergencies.

SOLID WASTE

Hartland is a member of and has representation on the Greater Upper Valley Solid Waste Management District (GUVSWMD). The District consists of ten towns and its purpose is to assist member towns in disposal, re-use, recycling and reduction of solid waste. At the present time there is no landfill in the Town; however, the GUVSWMD has received permits to open a

new landfill just inside the Town boundary in North Hartland and a recent bond vote has enabled the access road to move ahead.

Currently, residents either contract for solid waste pick-up through private contractors or carry their solid waste and recyclables to the facility in Hartford. There is a need to encourage recycling in order to reduce roadside littering and extend the "life" of existing and planned landfills. Likewise, there is a need to reduce the number of unregistered and non-inspected cars, trucks or other vehicles that exist in various locations.

RECREATION

As the future will bring an increased population having more leisure time, it is essential that Hartland now make proper provision for these land uses. Now, before their character is permanently changed by development, is the time to identify present open spaces best suited for the many types of outdoor recreation enjoyed by Hartland residents. Much of the existing open land available for recreation is neither conveniently located nor fully accessible. Plans for its use must include provision for adequate access, maintenance, and protections.

RECREATION PROGRAM AND RECREATION CENTER

A paid (part-time) Director manages Hartland's recreation program and is supervised by the Town Manager. The Director works closely with the volunteer Recreation Committee and Hartland Elementary School (HES) teachers and coaches.

Recreational activities are primarily based at the Hartland Recreational Center at Foster Meadow located on Route 12 in Hartland Three Corners. The center's structural facilities include the original village school (built in 1915) that has been converted to an indoor activity center (housing the Director's office, kitchen, meeting rooms, a kindergarten and other rooms) and a bandstand. Outdoor recreational facilities include lighted tennis and basketball courts and lighted ice skating rink, unlighted soccer and other playing fields, children's play areas with gym sets and a nature trail.

OTHER RECREATIONAL AREAS

- Hartland Town Forest, is a town-owned 27-acre plot located on the Cady Brook Trail off Jenneville Road. The Forest given to the town by the Jenne family contains picnic tables and walking trails, and is being managed for timber production
- The town-owned North Hartland Recreation Area (which includes the North Hartland Day Care Center located in the old North Hartland School) provides a village playground area.
- Sumner Falls Recreational Area off Route 5 includes picnic areas and is popular with canoe and kayak enthusiasts (this area is owned and maintained by TransCanada. The Hartland Fish & Game Club helps maintain this privately-owned site for public use.
- Approximately 200 acres owned by the State of Vermont on the western side of the Town and 27 acres at the confluence of Lulls Brook and the Connecticut River off Route 5 provide important open space and habitat. The Lulls Brook site has potential for increased recreational use if properly developed and managed.

- The North Hartland flood control dam and lake (owned by the US Army Corps of Engineers), located off the Clay Hill Road, is the largest recreation area in town. This area consists of picnic areas, swimming and boating facilities, and trails and is accessible for a minimal fee.
- Alder Meadow Brook flows eastward through the 5.75 acre Connecticut River Watershed Council Natural Area on Route 12. It was deeded by Mr. and Mrs. Frederick Prah to be preserved as public open space. Because it is a natural area, it has the potential for many types of conservation education.
- Eshqua Bog, off Garvin Hill Road, is a significant rare plant species habitat. It is owned by the Nature Conservancy and the New England Wildflower Society. There is a small parking area, and a boardwalk and trail which allows visitors to visit this wetland and see the rare orchids that live there without damaging the habitat or getting themselves wet.

TRAILS

Throughout the Town there is an extensive privately maintained groomed cross-country ski trail system and many miles of snowmobile trails maintained by the Hartland Hill Hoppers and the Vermont Association of Snow Travelers (VAST).

LIBRARY

Library services are funded each year by an appropriation approved by the voters at Town Meeting; a volunteer Board and an organization called "The Friends of the Hartland Library" also sponsor fund-raising activities throughout the year. The Library is open 31 hours a week (Tuesday, Wednesday, Friday and Saturday) and contains 67,000 volumes. Audiovisual equipment is available and a computer allows Internet access and inter-library loan services. A full array of magazines and other materials (video and audiotape) are available. Library staff (all part-time) includes a Director, Assistant Librarian, Children's Librarian, Circulation Director and one other staff member.

The library, constructed in 2000, is located in a 5,600 sq. ft. facility located in Hartland Three Corners behind the Hartland Recreational Center at Foster Meadow. The "new" library is fully handicapped accessible, and include computers for public use, a meeting room and 1.5 stories of shelving for books, periodicals and other instructional and educational materials. There is adequate public parking, a situation that had been a major problem at the old Martin Memorial Library. The old Martin Memorial Library has been leased to the Hartland Historical Society, and will serve as its headquarters and space to house its collections.

SCHOOLS

The Hartland School District is a member of the Windsor Southeast Supervisory Union (WSSU) #52 which also serves Weathersfield, West Windsor and Windsor. The Hartland Elementary School (HES), on the Martinsville Road off Route 5 in Hartland Three Corners, was constructed in 1971 with additional rooms and facilities added in 1986 and 1991. The school building has a stated capacity of 500 and serves grades K through 8. Enrollment has fluctuated in the past two

decades from a low of 303 in 1986 up to a high of 482 in 1994 and now back down to 329 (see table below). The school includes 27 classrooms, a library, music and band room, kitchen, a large multi-purpose room (includes a stage and facilities for basketball and other indoor athletic activities) and offices. The approximately seventeen acre site also contains an athletic field, playgrounds, parking and landscaping.

The Hartland School Board is an elected volunteer management and advisory group who work closely with the two principals (one for primary grades and one for secondary grades) to set school policy and provide budget management and oversight.

At current population levels, the HES adequately meets the instructional needs of Hartland students.

K-8 SCHOOL PUPIL ENROLLMENT

Year	Total	Year	Total
1986	303	1996	471
1987	321	1997	460
1988	338	1998	447
1989	372	1999	431
1990	406	2000	440
1991	436	2001	409
1992	441	2002	380
1993	454	2003	383
1994	482	2004	351
1995	459	2005	329

Hartland students in grades 9-12 may attend several designated public high schools in the area (Hartford, Windsor, Hanover and Woodstock) with tuition provided from tax revenue. Students may also attend private schools in the area (e.g., Kimball Union Academy) with partial tuition provided at the same level as the designated public schools, but the student's family must pay the remaining tuition balance.

As seen in the table on the next page, the number of Hartland secondary students tuitioned has fluctuated from year to year with an increase from a low of 121 in 1991 to 213 in 2001. Since Hartland can not control the fees charged by the accepting high schools, which vary as much as 45%, tuitioning of students has been a cause of concern by residents and the School Board. State authorities maintain that the threshold number of students for a viable high school cannot be met in Hartland. Another alternative to open tuitioning that has been discussed as a cost stabilizing measure is tying Hartland to a specific high school.

SECONDARY (TUITION) STUDENTS

	Hartford	Woodstock	Windsor	Hanover	Other	Total
1986	93	25	18	18		157
1987	96	22	18	16	6	158
1988	87	19	14	15	4	139
1989	85	20	8	14	5	132
1990	83	20	13	9	6	131
1991	78	16	16	6	5	121
1992	76	17	29	13	2	137
1993	93	13	0	15	1	155
1994	95	15	32	15	0	157
1995	90	13	37	37	0	177
1996	88	15	37	26	6	172
1997	na	na	na	na	na	na
1998	106	14	49	25	12	206
1999	98	18	43	27	18	204
2000	124	14	37	14	16	205
2001	121	17	39	19	17	213

PUBLIC UTILITIES AND POSTAL SERVICES

Electrical service is available to the entire Town. There are three privately-owned electric generating stations in Town - two in the village of North Hartland (at the North Hartland Flood Control Dam and at another dam near the confluence of the Ottauquechee and Connecticut Rivers) and one off Route 5 in Hartland Three Corners. The electricity generated at these facilities is put into the general electrical grid.

Telephone service is available to the entire Town. Cellular service is still spotty in much of the town. Internet service is available throughout town through dial-up, but most of the town also has high speed access available.

The only public water supply in Town is in the village of North Hartland which has a user-owned water system (not a town system). Public water systems for the village areas would allow more dense development and better fire protection. In anticipation of such systems, consideration should also be given to exploring and protecting future public well sites from potential contamination.

There are three U.S. Post Office facilities (full service) in Hartland - one in the village of North Hartland, one in Hartland Three Corners and one in Hartland Four Corners.

Currently no town-owned wastewater treatment or disposal system exists in the Town. However, as the population increases town officials may need to consider such options. Creation of limited wastewater treatment in the villages and commercial areas would help enable these areas maintain their vitality and allow more dense development.

CEMETERIES

There are currently 13 cemeteries in the Town. They are described below.

Name	Location	Status
HT Dunbar Yard (aka Gallup)	Route 5 near N. Hartland	Inactive
RV Gill Grave Yard	Hartland Hill & Old Birch Rds.	Inactive
Jenne Cemetery	Jenneville & Jenne Rds.	Active
Walker Grave Yard	Walker Cemetery & County Rds.	Inactive
Weed Grave Yard	Weed Rd.	Inactive
Gallup Grave Yard	Weed Rd. near Cream Pot Rd.	Inactive
Trask Cemetery	North end of Mill St., N. Hartland	Inactive
Paddleford Cemetery (aka Cutts)	Clay Hill Rd.	Inactive
Quaker/Willard Cemetery	Mace Hill Rd.	Inactive
Densmore Cemetery	Densmore Hill Rd.	Inactive
Center of Town Cemetery	Center of Town Rd.	Inactive
Plains Cemetery	Route 5 north of Hartland 3 Corners	Inactive
Hartland Village Cemetery	Station Rd., Hartland 3 Corners	Active

With a growing population, there may be a need to expand some of the existing cemeteries should abutting landowners give permission. If such permission cannot be obtained, Town officials will need to investigate suitable property for additional cemetery space.

TOWN ROAD DEPARTMENT

The Town Road Department is located adjacent to the Hartland Volunteer Fire Department on Route 12 in Hartland Three Corners. The facility includes a large truck garage, a contained salt shed with concrete floor and storage areas. The Department is well-equipped to serve the existing needs of the town during all seasons. There is also a large sand storage and collection area next to the 4 Corners Children's Center (old Four Corners school building) on the Brownsville Road.

OTHER TOWN-OWNED LAND

The Town has acquired a 27 acre parcel, the Summarsell property, which is adjacent to the parking lot at the I-91 interchange. The development rights to this land are held by the State and the Upper Valley Land Trust. This property may be used for open space, recreation and agriculture.

The Town of Hartland owns one other small parcel of property located at the corner of Route 12 and the Brownsville Road in Hartland Four Corners. This was the site of the former Four Corners Library Building. There is currently no plan for use of this property.

The Town maintains all the buildings it owns and details the maintenance specifications in all leases (approved yearly) for rental of space in these buildings.

CHILDCARE

Childcare is an important service, especially given that Hartland's population largely commutes to work outside of town. Though generally not publicly provided, the town can still support childcare services by offering leases of public buildings and helping to coordinate the provision of services. Hartland Four Corners Children's Center and Hartland Coop Nursery provide the larger services in town and several individuals likely provide smaller services. The Children's Center is located in a town owned building.

Utilities and Facilities Goals:

1. *Provide Town services and facilities that meet established needs of current residents and the growing population in a cost-effective manner.*
2. *Retain open space in order to provide a variety of recreational opportunities for the community, maintain the community's rural atmosphere, and conserve natural resources by proper land management.*

Utilities and Facilities Policies

1. *Base planning for future services and facilities on a reasonable yet conservative growth estimate that reflects the desire of the community to retain its rural character.*
2. *Provide and plan for adequate offices, equipment and technology for Town officers, staff and administrators.*
3. *Carefully consider the ability of Town to provide adequate levels of public services when reviewing proposed development.*
4. *Maintain and enhance facilities for a variety of academic, athletic, social, cultural and community activities.*
5. *Finalize the redesign of the Foster Meadow recreation area as a resource and a gathering place for residents of the Town.*
6. *Public lands now used as open space and for recreation shall be retained, forming the cornerstone of the system.*
7. *Private trails, such as cross country skiing and VAST trails, are valuable recreational assets to the town and should be preserved.*
8. *Open space and recreation areas should be a single system with the various areas eventually connected by trails.*
9. *Playgrounds should be established in the village and hamlets, either through the renovation of existing playgrounds or the establishment of new ones.*
10. *The Town Road Department and Town officials should be made aware of all new development plans so that they have the opportunity to evaluate any possible impacts on highway maintenance.*

Utilities and Facilities Recommendations:

1. *The Planning Commission and Selectboard should monitor increased truck traffic on local roads associated with the proposed new landfill in North Hartland. This is an especially important issue in populated village areas.*
2. *It is recommended that the Selectboard provide for additional emergency service equipment to meet the needs of the population (e.g., equipment truck for forestry and highway rescue/fire services.)*
3. *To manage growth while maintaining the existing development pattern of the Town, it is recommended that the Selectboard and Planning Commission investigate a method of wastewater treatment either by connecting to existing systems in neighboring towns or constructing its own system. Arrangements should be made for a thorough planning and engineering study to determine costs and other ramifications of this system including potential land use impacts associated with various alternatives.*
4. *In collaboration with the GUVSWMD, the Town should improve its current system of solid waste reduction and disposal to reduce outdoor burning (the use of "burn barrels"), reduce roadside litter, encourage recycling, and reduce the number of unregistered and non-inspected junk vehicles.*
5. *The Selectboard should plan for a public water system (i.e., town wells) in the village and commercial area(s). This would involve exploring aquifers for additional testing to, protecting one or more well sites for future needs, and studying forming a water district.*
6. *It is recommended that landowners consult with fire prevention officials when constructing new ponds or upgrading existing ponds to explore the feasibility of installing dry hydrants for fire prevention and service. Such water sources should be accessible to fire trucks in all parts of the Town.*
7. *It is recommended that the Selectboard investigate the need for expanded or new cemetery space and make plans for acquiring land, as appropriate.*
8. *Close attention should be given to recreational needs in the village areas when town lands or buildings are considered for sale (Selectboard, Recreation Committee, Planning Commission).*
9. *Continue to utilize the best available demographic data to keep abreast of projected changes in the size and composition of the school-age population. (Planning Commission, School Board, WSSU#52)*
10. *Develop and implement plans for balanced growth to ensure that tax revenues keep up with school costs. (Planning Commission, Selectboard)*
11. *Continue to monitor the pros and cons of the various building alternatives available for secondary education. (School Board, WSSU#52)*
12. *It is recommended that the Selectboard, in consultation with town commissions, develop a priority schedule for meeting the recommendations listed herein, which would include the results of investigations into the appropriate financing for each activity.*
13. *Work to ensure that childcare continues to be provided in Town in easily accessible locations.*

CHAPTER 8: REGIONAL CONTEXT

THE REGION

Hartland is a member of the Two Rivers-Ottawaquechee Regional Commission and participates in regional transportation planning, economic development and protection of the region's natural resources, as well as many other regional issues, through the Commission. Residents have close ties to the Hartford-Lebanon area for employment, shopping, services and entertainment.

It is recognized that many issues affecting a community are addressed most efficiently on a regional rather than municipal level. The Town of Hartland works with the other members of the Greater Upper Valley Solid Waste Management District on solid waste issues. Emergency dispatch is now handled through the statewide E911 system with emergency response handled cooperatively with Hartford, Woodstock, Windsor and West Windsor. Without a high school of its own, Hartland relies on the cooperation of Hartford, Windsor, and Woodstock, Vermont and Hanover, New Hampshire for secondary education. Hartland has joined with its neighbors to the north and south, Hartford and Windsor, to support the designation of US Route 5 as a Scenic Byway.

NEIGHBORING COMMUNITIES

The effects of land use decision do not stop at the town line. The plans of neighboring communities were studied to identify possible issues and conflicts with Hartland's future plans.

HARTFORD

Hartford adopted a revised Town Plan on June 22, 2003. Like Hartland, Hartford has designated most of the land along the town line to remain low density and rural in nature. Much of this shared border is comprised of the federally-owned North Hartland Lake flood control land. The proposed regional landfill in Hartland adjoins an area in Hartford that is currently used as a sand and gravel. Both communities have identified the US Route 5 corridor in the area of the existing mobile home park as able to accommodate somewhat higher density than the more remote surrounding lands. Like Hartland, Hartford has utilized portions of the US Route 4 corridor for commercial development.

Hartford's future development activities in the US Route 5 south corridor will have a significant impact on land use in Hartland. In 2001, Hartford completed the Route 5 South Study which examined the development potential of this area and concluded that due to natural resource constraints, the amount of land zoned commercial should be reduced. Hartford has been pursuing extending water and sewer lines south on US Route 5 as a means for promoting commercial development in appropriate locations. Both communities will need to carefully regulate commercial development to ensure that unwanted patterns do not develop.

The proposed landfill in Hartland has the potential to adversely impact traffic safety on Hartford's roads. Hartford and the Greater Upper Valley Solid Waste Management have worked

together to develop an alternative access road involving a bridge over I-91 and onto the southern portion of Route 5 in Hartford. This new road also will provide an alternative route for Twin State Sand and Gravel located in Hartford.

The US Army Corps of Engineers North Hartland Lake flood control property extends from the North Hartland Dam in a rural residential area of Hartland to the heavily-visited Quechee Gorge, the new Visitor Center and the State Park area in Hartford. Plans for the future use of this property must continue to take the differing characters of these areas into account.

WOODSTOCK

The current Town and Village of Woodstock Town Plan expired on October 5, 2006. Woodstock plans to continue low density residential use immediately adjacent to the town line on US Route 4. Along the rest of the border, both communities plan for the continuation of a rural development pattern.

In its draft Town Plan in progress, Woodstock has expressed concern for Hartland's desire to continue to encourage any commercial development along US 4. Approval of development plans in this area must be contingent on traffic safety. Land uses should be consistent with the character of the area and not promote sprawl.

WEST WINDSOR

West Windsor's Town Plan, adopted on May 9, 1994, has expired and an updated plan is under review. Both Hartland and West Windsor plan to continue the rural nature of the land area near the shared border.

WINDSOR

Windsor's Town Plan was adopted on January 26, 1999. To the west of I-91, both Hartland and Windsor propose to maintain rural land uses. Windsor's plan also designates rural land uses along I-91 to maintain this scenic approach to the area. To the east of I-91 along US Route 5, Windsor, like Hartland, has designated areas for rural lands uses, residential and business development. Similar to Hartland, Windsor's Town Plan proposes that the Connecticut River shoreline east of the railroad track remain primarily open. Windsor's Town Plan reflects that community's shared concerns regarding the potential for strip development along US Route 5 and recommends that strict access-management measures be considered.

Both Windsor and Hartland must carefully plan development on US Route 5 near the I-91 interchange to ensure that economic benefits are not gained at the cost of traffic safety and loss of the scenic rural character of this area.

Regional Context Policies:

1. *Hartland should continue to participate in the development of plans that address regional issues through the Regional Planning Commission.*
2. *Hartland will continue to work with other communities toward common objectives.*

CHAPTER 9: COMMUNITY DEVELOPMENT

Hartland's economic activity depends upon private business enterprises. A field survey conducted in 1969 indicated that there were twenty-four businesses in Town, all of them small ones. By 1987, there were over sixty businesses operating in Hartland.

Future economic development should be determined by the growth of the community. Business should not be promoted for its own sake; neither should it be sought at the expense of the environment or the quality of life that Hartland residents enjoy. It should promote job opportunities in a balanced relationship with the requirements of the community and protection of the landscape and environment.

A balance between business and environment can be achieved by concentrating more intense uses such as commercial growth in the village centers and industrial uses in limited areas. The villages are surrounded by rural land. Settlement in these outlying areas historically has been associated mainly with farming. As this use required large amounts of land, over the years, Hartland's population has been dispersed throughout the Town. Home occupations are family-run, small-scale home industries or service enterprises that can be valuable assets to the community's economy and permitted in a person's residence or adjacent accessory structure.

Community Development Policy:

1. *This Plan supports the establishment of businesses throughout Town that fit the definition of a home occupation.*

Community Development Recommendations:

1. *In implementing this policy, the Planning Commission shall develop appropriate guidelines for home industries or home service businesses. Such businesses should not be allowed if they would create a nuisance or alter the rural residential character of the area in which they would operate. These businesses should be reviewed periodically to determine if they have grown into commercial enterprises requiring additional approvals.*
2. *Encourage appropriate economic development activities, and continue participation in the Green Mountain Economic Development Corporation.*

CHAPTER 10: DEFINITIONS

The following definitions shall apply throughout this Town Plan unless the context otherwise requires:

Accessory Dwelling Unit - A one-bedroom dwelling attached to or near an owner-occupied dwelling.

Affordable Housing - Housing is considered to be affordable when monthly shelter costs do not exceed approximately one-third of a person's monthly income. As used in the housing section recommendations, the phrase means within Vermont Housing Finance Agency income limits for rental or owner housing.

Bylaw - Zoning regulations, subdivision regulations, the official map or capital budget and program adopted under the authority of Chapter 117 of Title 24 of Vermont Statutes Annotated.

Single/Family Dwelling Unit - A house or residential unit constructed to be used by a single household, which may have an accessory dwelling unit on the same lot.

Flood-Prone Area - An area established as the 'Flood-Prone Area' under the Town Plan and referring to the area within the boundaries of the 100-year-flood.

Land Development - The division of a parcel into two or more parcels, the construction, reconstruction, conversion, structural alteration, relocation or enlargement of any building or other structure, or of any mining, excavation or land-fill, and any change in the use of any building or other structure or land or extension of use of land.

Legislative Body - The Selectmen of the Town of Hartland.

Municipality - The Town of Hartland.

Person - An individual, a corporation, a partnership, an association and any other incorporated or unincorporated organization or group.

Plan - The Hartland Town Plan.

Planning Commission - The Hartland Planning Commission appointed by the Selectmen of Hartland in accordance with Chapter 117 of Title 24 of Vermont Statutes Annotated.

Public Highway – a state or town road passable year round.

Rural Town - A town having at the date of the most recent US Census, a population of fewer than 2500 persons as evidenced by that Census.

Shall/Must – mandatory, required

Should/Consider/Encourage – supported but not required

Strip Development - Linear commercial development along a town or state 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:

- use of individual curb cuts for each project along the highway;
- lack of connections between the projects, except for the highway connection;
- one-story buildings containing a single type of use;
- little to no pedestrian circulation between projects on the strip;
- accessibility of individual projects primarily to automobiles;
- separation of projects by parking lots;
- individual project design, signage, lighting, parking, and landscaping; lack of coordination between projects concerning these items, causing cluttered appearance;
- narrow depth and broad street frontage of project parcels to take advantage of exposure on the arterial highway.

Structure - An assembly of materials for occupancy or use, including but not limited to, a building, mobile home or trailer, or billboard; for residential, business, industry or other public or private purposes or accessory thereto. For the purpose of these Regulations, the term does not include fences, stonewalls, dog houses, tents, non-commercial antennas or other minor structures.

Trail - A public right of way that is not a highway and that: (a) previously was a designated town highway having the same width as the designated town highway, or a lesser width of so designated; or (b) a new public right or way laid out as a trail by the Selectmen for the purpose of providing access to abutting properties. Trails shall not be considered highways and the town shall not be responsible for any maintenance, including culverts and bridges.