2020 Town Plan

For the Town of Reading, Vermont

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Chapter 1

INTRODUCTION

Purpose of a Town Plan

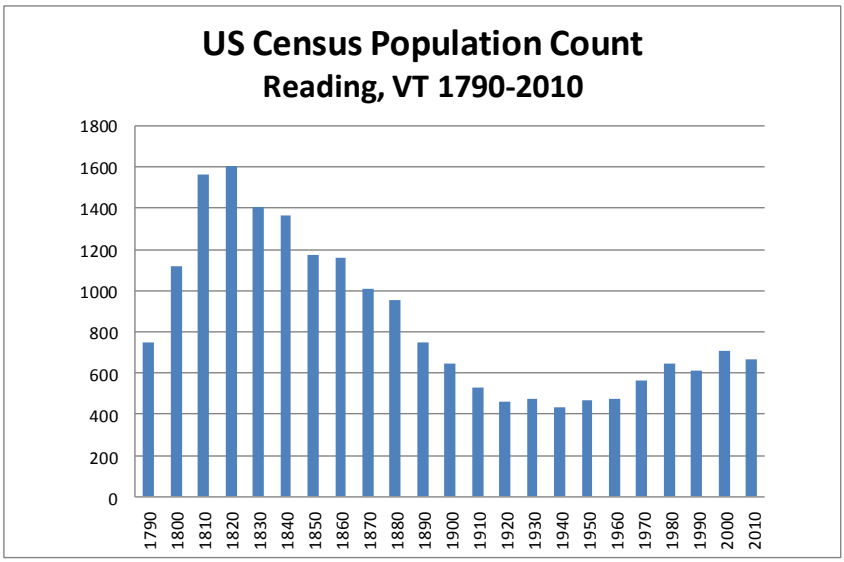
Towns have the authority to adopt Town Plans under Vermont Statutes Annotated (V.S.A.) Title 24, Section 4381. The Plan should reflect the community's wishes for the direction of future growth and level of development regulation, and guide local land use decision-making. The Plan should summarize the Town's attitudes as clearly as possible because the Zoning Ordinance must carry out its provisions. The Plan will expire after five years unless it is re-adopted by the legislative body of the Town. A town must have a duly adopted Town Plan in order to make amendments to zoning or subdivision regulations. The Town Plan serves as the basis for the Town's position on developments that are reviewed by the Vermont Environmental Board under Act 250 and the Plan allows the Town to participate as a statutory party in that process. The Town Plan also serves as the foundation for the Town's position on the placement of telecommunication facilities, wind farms and other power generation facilities under 30 V.S.A., Section 248. A Plan that is approved by the Regional Planning Commission enables the Town to apply for municipal planning grants from the Department of Housing and Community Affairs. In order to be approved by the Regional Planning Commission, the Town Plan must be consistent with the State Planning Goals under Act 200 (V.S.A. Title 24, Section 4302). The Plan must also contain the elements listed in V.S.A. Title 24, Section 4382, which are essentially the chapter headings of this document and the maps at the end of it.

Population and Demographics

Reading's population was at an all-time low of 437 residents in 1940. At its peak in 1820, the Town was home to 1,603 people. The migration of farmers to the Midwest led to a loss in population in Reading and other towns in Vermont until the early 1900's. At that time, the machine tool industry began to move into the region and population rose steadily for a number of decades. The closure of several large plants in the 1980s lead to a slight decline in Reading's population between 1980 and 1990, but the decade between 1990 and 2000 showed a population growth of 15% to 707. According to Census data, this rise was strictly due to people moving into Town. The "natural increase" (births minus deaths) showed a drop of 9.5 persons between 1990 and 2000. The U.S. Census Bureau counted Reading's population in 2010 at 666 for a decrease of about 6% from 1990.

Table 1.1 & Figure 1.1: Town of Reading Population Trends

Reading Population 1790-2010			
Year	**Reading**	**Windsor County**	**Vermont**
1790	747	—	85,088
1800	1,120	—	153,608
1810	1,565	—	218,068
1820	1,603	—	236,433
1830	1,409	—	279,862
1840	1,363	40,356	291,948
1850	1,171	38,504	314,304
1860	1,159	37,193	315,098
1870	1,012	36,063	330,551
1880	953	35,196	332,286
1890	749	31,706	332,422
1900	649	32,225	343,641
1910	530	33,681	355,956
1920	463	36,984	352,428
1930	474	37,416	359,611
1940	437	37,862	359,281
1950	470	40,885	377,747
1960	472	42,483	389,881
1970	564	44,082	444,731
1980	647	51,030	511,466
1990	614	54,055	562,767
2000	707	57,418	608,827
2010	666	56,670	625,741
U.S. Census Bureau - Census of Population & Housing, 2000 Summary File 1 Tables P1 and H11			
Source	VHFA Housing Data Website		



Town Plan Survey and Discussion Groups

The Planning Commission writes the Town Plan based on the attitudes of the community about the future of the Town over the next five years. For the 2005 Plan, the Planning Commission mailed a survey to 750 residents and landowners and received 228 responses for about a 15% return. For this Plan, the Planning Commission conducted our survey during the spring of 2011

and offered it both online and in paper form through the Town Clerk's Office and local businesses. Survey responses this time resulted in 108 returns. The results of the survey appear as Appendix B at the end of the Town Plan.

The Planning Commission also invited various town groups to attend our meetings during the spring and early summer of 2011 to discuss Town Plan issues from the point of view of their group. The groups included the Reading Listers, Reading Elementary School Board, Library Trustees, Fire Department, Historical Society, Conservation Commission, recreation groups, town businesses that employ more than a few people, and owners of parcels of land larger than 200 acres. The Planning Commission invited a total of thirty-six different town groups and over the course of four of our meetings, fifteen of these groups attended. The details of the group discussions are recorded in the minutes of the Planning Commission meetings from April, May, July, and August of 2011. The minutes can be found on the Planning Commission page of the Reading Town website.

The purpose of the survey and group discussions was to gauge the feeling of the community on issues typically discussed in a Town Plan. By far, the most important and interrelated issues facing the Town over the next five years were the high levels of property tax and the future of Reading Elementary School (RES). Other important concerns were protecting open space, forests, views, and wildlife habitat, and avoiding development that would change the rural character of the Town. Many felt that the back roads had been widened and improved too much, leading to more cars traveling faster. Respondents were concerned that this jeopardized the safety of walkers, bikers, and horseback riders. A complete copy of the written comments from the Town Plan Survey is on file at the Town Office.

Forest Fragmentation Study

In 2007 the Reading Planning Commission received a municipal planning grant through the Vermont Department of Housing and Community Affairs to study forest fragmentation in Reading and research ways to minimize its negative consequences. Fragmentation occurs when forests are divided into smaller parcels under new owners or when forests are converted to open land. The result is the loss of working forests, land less capable of supporting a diversity of plant and animal species, the loss of a healthy ecosystem, and development that may further accelerate the process. To assist in the study, the Town hired the Vermont Natural Resources Council and Smart Growth Vermont to work in consultation with the Vermont Fish and Wildlife Department.

The consultants mailed a survey to all Reading landowners during the summer of 2007 asking how they used and what they valued about Reading's forestlands. Of the 503 surveys mailed out, 103 were completed. They continued gathering data at a public forum held at the Reading Town Hall in October of 2007, attended by about fifty people.

The consultants issued their Town of Reading, Forest Fragmentation Project, Final Report in May of 2008. It may be viewed in full on the Planning Commission page of the Town's website, but Attachment A to the Final Report, Landowner Survey Results, appears at the back of the Town Plan as Appendix C.

Town Plan Organization

The following chapters provide background and discussion of the issues identified in the Town Plan Survey, Group Discussions, and Forest Fragmentation Study. Each chapter presents a number of Goals, Action Steps, and Policies for the topics discussed in that chapter.

The Planning Commission studied the goals at the end of each of the chapters, and in Chapter 9 lists the most important to work toward over the next five years. Chapter 9, Implementing the Plan, also lists the Action Steps the Commission feels Town organizations and citizens must take to support these Goals.

Chapter 2

NATURAL AREAS, SCENIC AND HISTORIC RESOURCES

Town Setting

The Town of Reading is situated at the eastern edge of the southern Green Mountains and just west of the Southern Vermont Piedmont biophysical region. Biophysical regions are classified on the basis of climate, geology, topography, soils, natural communities, and human history.[1] Much of the Town lies in the foothills on the eastern slope of the Green Mountains. Population densities are concentrated around four villages or hamlets: Felchville, South Reading, Hammondsville and Bailey's Mills.

Felchville is the hub of housing density and commercial activity and is located on the Town's primary north-south transportation corridor, VT Route 106. The village is bordered on the south and east by flat agricultural land and the North Branch of the Black River floodplain. Hammondsville is also located on VT 106 about 2.9 miles north of Felchville. South Reading is a historic hamlet with a cluster of homes, an old stone schoolhouse, and a stone church but with little to no commercial activity. It is located four miles west of Felchville on the Town's primary east-west highway, Tyson Road. Bailey's Mills is a small hamlet nearly at the Town's geographic center.

Twenty-five percent, or 6,676 acres, of the Town's total land area of 26,624 acres is owned by the State of Vermont including the Arthur Davis Wildlife Management Area (5,226 acres), Coolidge State Forest (1,008 acres), Twenty Foot Hole State Forest (38 acres), the Knapp Brook Wildlife Management Area (322 acres), and several smaller parcels. As public access to private lands for recreational pursuits (e.g., hiking, hunting, fishing, nature observation) continue to be posted at increasing levels in Reading and surrounding towns, conserved public lands, such as those identified above, will be critically important to providing residents and visitors to the Town with places to conduct traditional, low impact, natural resource based activities.

Geology

Topography and Soils

Reading's topography is defined by steep slopes and ridgelines of hills. Land elevations above sea level generally exceed 1,500 feet but range from 754 feet at Felchville to 2,602 feet at the summit of Mount Moses. The Town is primarily forested interspersed with a patchwork of open fields revealing its agricultural past as well as current land use patterns. Much of the flatter land

[1] Thompson, E. H., and E. R. Sorenson. 2000. Wetland, Woodland,Wildland: a guide to the natural communities of Vermont. Vermont Department of Fish and Wildlife and The Nature Conservancy of Vermont.

along existing roads is designated prime or statewide agricultural soils by the Natural Resource Conservation Service.[2]

Within many wooded areas are pockets of deeper, more fertile soils or "enriched sites." These provide excellent conditions for forest growth. Soils found in Reading's wooded areas can generally be divided into shallow (10 to 20-inch depth to bedrock) to moderately deep (40 inches to bedrock) forested soils. Glover, Vershire, Lyman, Pomfret, and Tunbridge soils dominate these woodlands.

As elevation decreases on the hill slopes, soils with deeper profiles are not uncommon. Berkshire and Dummerston soils are deep well-drained soils. Soils with a "hardpan" and what is locally known as "blue clay" include the less well-drained, but still productive, Buckland, Peru, and Cabot soils. Near streams and outwash areas of the major streams are the best soils for all uses. These include Agawam, Windsor, and the less well-drained Podunk and Grange soils.

Agricultural Soils

The soils that are best suited for farming are classified as prime and statewide significant agricultural soils. Soils in the prime (or high) category are those which, due to chemical and physical properties, are the most fertile and exhibit the fewest limitations for farming. They have high potential for sustained agriculture and little or no limitation for a wide variety of crops adapted to Vermont's climate. Soils classified as being of statewide significance (or good) have potential for growing crops, but one or more limitations will restrict the choice of crops and require more intensive management than soils in the prime category. Both soils categories are a finite resource upon which the future viability of agricultural endeavors depend.

Approximately 768 acres of prime and 2,441 acres of statewide significant agricultural soils are located in Reading. Cultural, economic and environmental issues related to agriculture and preservation of farmland are discussed in more detail below.

Development Capability and Septic Regulations

Vermont Wastewater System and Potable Water Supply Rules were revised on September 29, 2007. The new rules allow for installation of septic systems on 30% slopes (in contrast the old regulations allowed systems only on 20% slopes) and in shallower soils on certain qualifying sites. As many of the land parcels in Felchville are too small to comply with State septic regulations, the Town encourages the State to pursue innovative septic system designs and technologies suitable for use on small parcels.

[2] U. S. Department of Agriculture, Natural resource Conservation Service Web Soil Survey (WSS): http://websoilsurvey.nrcs.usda.gov/app/.

Slope and Elevation

Slope is the inclination of the land surface and is an important factor in determining suitability for development. The Natural Resources Conservation Service has divided slope classifications into the following categories:

0-3%	Generally suitable for most types of development, but may require drainage;
3-8%	Most desirable for development, having the least restrictions;
11-15%	Suitable for low-density development when particular attention is given to erosion control, runoff, and septic design;
15-25%	Unsuitable for most types of development and septic systems, construction is costly, erosion and runoff problems likely;
>25%	All types of construction should be avoided, careful land management for other uses needed.

Generally, in Vermont, land above 2,500 feet in elevation is considered a fragile environment and development there should be strictly discouraged. The land tends to be steep with an extremely shallow soil depth to bedrock, low recovery rates of damaged vegetation, and high susceptibility to erosion. These highland areas are largely in forested areas and contribute to the capture and filtration of clean water to lower elevations. Vermont statute (Title 10, Chapter 151) requires development above 2,500 feet elevation to obtain a State land use (Act 250) permit. The same statute defines lands above 1,500 feet in elevation to be headwaters.

The Elevation and Slopes Map of this Town Plan identifies steep slopes (over 25%), high elevations (mostly over 1,800 feet), and ridgelines. Careful consideration should be given to the fragile and scenic nature of these areas when determining what kinds of development should be allowed there.

Earth Resources

Talc was historically mined on the east side of VT Route 106 near Hammondsville. The mine closed many years ago, however, leaving the area with pits and caverns that make the land unfit for residential development. The former mine area has been zoned for industrial or mining use. Land to the north and east of Felchville (near junction of VT Routes 106 and 44) is also zoned for industrial and mining use and was the location of a talc processing facility for many years. As some of the land formerly owned by the talc processing facility is considered deer wintering habitat and a wildlife travel corridor by the Vermont Fish and Wildlife Department (VFWD) and contains steep slopes, the Planning Commission is considering removing the industrial/mining designation from this area on the Future Land Use Map. Part of the property owned by the Town is now occupied by the new fire station.

Mineral resource extraction is allowed as a conditional use in the Industrial, RR-25, and RR-10 zoning districts subject to requirements specified under Section 4.5 of the 2007 Reading Zoning Ordinance. Dust, noise, and wear and tear on roads are some typical negative impacts associated with earth extraction activities.

Fragile Areas

Wetlands

Wetlands are a unique and valuable natural resource. Such areas are defined as "those areas of the state that are inundated by surface or ground water with a frequency sufficient to support significant vegetation or aquatic life that depend on saturated or seasonally saturated soil conditions for growth and reproduction. Such areas include but are not limited to marshes, swamps, sloughs, potholes, fens, river and lake overflows, mud flats, bogs, and ponds, but excluding such areas as grow food or crops in connection with farming activities. See 10 V.S.A. § 902(5)."[3]

In the Vermont landscape, wetlands often occur in association with lakes, ponds, rivers and streams. They may also, however, be isolated from any obvious connection to surface water. In all wetlands, the presence of water creates conditions favorable to the growth of specially adapted plants such as cattails, water lilies, alders, dogwood, red maple and boxelder to name just a few. Wetlands serve many functions and benefit the health, safety, and welfare of the general public. Primary wetland values include fish and wildlife habitat, flood and erosion protection, nutrient and pollution filtration, ground water recharge, aesthetic diversity, and sites for educational and recreational activities. It is estimated that less than 5% of Vermont is wetland. "Historical surveys indicate a loss of 35% (121,000 acres) of Vermont's wetlands through encroachment and conversion prior to the 1980s."[4] Vermont's original wetland area has been lost or severely impaired due to over 200 years of draining, dredging, filling, or excavation activities associated with industrial and residential developments and agriculture. The most effective way to assure the continuation of wetland values is to protect these areas that remain. Several state and federal laws provide protection for wetlands including the U.S. Army Corps of Engineers Section 404 permits under the Clean Water Act, Vermont's Act 250, and the Vermont Wetlands Rules.

All wetlands mapped or not, may be regulated by the State and federally by the U. S. Army Corps of Engineers. Maps of wetlands provide some information about the location of wetlands; however, on the ground wetland delineations (which are good for five years) provide the most accurate information about the exact location of a wetland's boundaries. Wetlands mapped on the Water Resources Map[5] are based on aerial photos and include the National Wetlands Inventory prepared by the U. S. Fish and Wildlife Service and smaller wetlands mapped by the SWCRPC. Wetlands on the Vermont Significant Wetlands Inventory maps are Class I and II wetlands which are defined under the 2010 Vermont Wetlands Rule.[6] Any wetland over ½ acre

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[3] Vermont Wetlands Rules (effective August 1, 2010): http://www.nrb.state.vt.us/wrp/rulemaking/wetlands2010/filedruledocs/VWR%207-16-10.pdf.
[4] Vermont Surface Water Management Strategy: http://www.vtwaterquality.org/wqd_mgtplan/stressor_encroachment.htm
[5] Vermont Significant Wetlands Inventory Maps: http://www.vtwaterquality.org/wetlands/htm/wl_vermontsigwetinvmaps.htm
[6] Vermont Wetland Rules (2010):

in size, and wetlands that are habitat to rare, threatened and endangered species, and other types of wetlands described in the Vermont Wetland Rules are automatically presumed Class II wetlands even if not mapped. Class II wetlands have a 50 foot buffer zone around them that is regulated by the Vermont Wetland Rules. Class III wetlands are those not Class I and II and therefore are not regulated under Vermont Wetland Rules. However, these may be protected by the State via Act 250 review or federally under Section 404 of the Clean Water Act (review required for large or federally funded projects). The degree to which a particular wetland fulfills the above functions, rather than its size, determines its significance under Vermont Wetland Rules.

Vernal Pools

Seasonal or "vernal" pools are generally defined as depressions with no permanent inlet or outlet and no fish in most years. The lack of fish allows a diversity of other animals to use the pools. Vernal pools provide critical breeding habitat for many amphibians (e.g. wood frogs, spotted salamanders) and invertebrate species (e.g. fingernail clam, fairy shrimp). Because the pools fill up with water either from snow melt or rainfall, most seasonal pools are only wet in the spring months and dry up during the summer months. Vernal pools may be overlooked in site evaluations because they are only wet for a few months out of the year. The Town should consider mapping vernal pools in order to protect these valuable habitat areas.

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http://www.nrb.state.vt.us/wrp/rulemaking/wetlands2010/filedruledocs/VWR%207-16-10.pdf

Table 2.1 – Inventory of Natural and Cultural Resources

INVENTORY OF NATURAL AND CULTURAL RESOURCES

Rare and/or Irreplaceable Natural Communities/Areas

1. Reading Pond.
2. High elevation areas and ridgelines shown on the map, generally above 1,800 feet.
3. Class I and II wetlands as identified by the Vermont Wetlands Program.
4. The Moose Crossing on Tyson Road in the area referred to as The Alps.
5. Critical or significant wildlife habitats and natural communities recognized by the VFWD.

Historic and Cultural Resources

1. Felchville Cemetery
2. Weld Cemetery
3. Spear Cemetery
4. South Reading Cemetery
5. Amsden Cemetery
6. Bailey's Mills Cemetery
7. Buck Cemetery
8. Sawyer Cemetery
9. Shedd Hill Cemetery
10. Swain Cemetery
11. The Indian Stones,
12. Methodist Church, Felchville (Reading Historical Society)
13. Historic sites listed in the Vermont Historic Sites and Structures Survey
14. Stone Chimney (Reading Historical Society)
15. Universalist Church (Reading Historical Society)
16. Stone School House, South Reading
18. All existing stone walls and cellar holes

Scenic Resources

1. Various stretches of scenic roads, including: sections of Tyson Road in and west of South Reading village, North Puckerbrush Road, all of Caper Hill Road, and Jenne Farm Road.

Agricultural and Silvicultural Lands

1. Bailey's Mills area
2. Reading Farms
3. Springbrook Farm
4. Jenne Farm
5. Newhall Farm
6. Rowlee Farm
7. Lexington Farm
8. Happy Acres
9. Sylvan Acres
10. Reading Center area

Surface Waters

Reading sits in the headwaters of Mill Brook, Ottauquechee River, and North Branch of the Black River. The VT 106 corridor south of the village of Felchville broadens to a flat, open floodplain following the North Branch of the Black River. Heading upstream from Felchville the North Branch follows Tyson Road to South Reading where it is formed at the convergence of Darby and Alder Meadow brooks. Mill Brook is the dominant watershed in the northeastern portion of Reading. In the hamlet of Bailey's Mills the brook is joined by Bailey's Mills Brook and further downstream in Hammondsville meets Reading Hill Brook which parallels Route 106 to the north. Mill Brook then flows southward along Route 106 before turning east into West Windsor near the junction of VT Route 106 and 44. The northwest part of Town in the vicinity of Chase Corners is included in the upper Ottauquechee River watershed. Problems in these higher elevation streams can impact water bodies far downstream, therefore it is critical that the Town protect these resources.

There are no known direct discharges of pollutants or "point sources" into any of the water bodies in the Town of Reading. Nonpoint source pollution such as runoff from agricultural practices located too close (or in) fragile streams, failed septic systems, land development, road maintenance or poor forestry practices can threaten waterways in Reading.

Three lakes (ponds) in Reading are significant resources, namely Reading Pond located in the Arthur Davis Wildlife Management Area and Knapp Ponds No. 1 and 2 in the Knapp Brook Wildlife Management Area. Knapp Ponds have developed public access areas, are located in the Town of Cavendish and owned and maintained by the VFWD, provide boat launch ramps, shoreline and handicapped platform fishing, and parking. Public access to Reading Pond is not developed but accessible only by a trail which is not open to motorized vehicles.

Knapp Pond #2

Tropical Storm Irene caused extensive flooding throughout the Town on August 28 and 29, 2011 resulting in extensive damage to the community's transportation infrastructure, several residences, and personal and public properties. The flood also had significant effects on streams, ponds and wetlands with impacts on their very character and the natural values and services these waters provide the people of the Town and environment. Wildlife, most particularly aquatic biota (fish and invertebrate populations) suffered setbacks. Flood water realigned stream channels laterally, streambeds were downgraded as well as aggregated, and large quantities of wood (whole trees, limbs, etc.) were introduced as a result of streambank erosion of adjacent riparian woodlands. Wildlife populations have evolved over the millennia to recuperate from such natural catastrophic events within relatively short time spans providing all elements of habitats necessary for species reproduction and survival remain. No doubt the flood had significant costs to the Town, and flood recovery activities were necessary to restore Town services (e.g. bridge and culvert obstruction removal, bank stabilization). Nonetheless, the flood revitalized and even enhanced in-stream habitats which can allow wildlife populations to rebuild to levels on par or even exceeding that which existed before the flood. Certain activities, such as stream channelization, gravel extraction and bank berming, were also conducted and will have long term negative effects on stream and floodplain functions and aquatic biota.

Tactical basin plans (TBP) for Vermont's watersheds are developed by the Vermont Agency of Natural Resources. Each TBP contains objectives, prioritized strategies, benchmarks and tasks in order to facilitate the implementation of the plans. Reading and its waters are addressed in the Basin 10 Plan for the Black and Ottauquechee river watersheds. The TBP is the guidance document for the ANR's work on water resources. It is used to prioritize projects and target resources for restoration and protection. The goals of the Reading Town Plan and local water quality improvement projects should be listed in the town plan in order to prioritize them in the TBP. The Vermont Agency of Natural Resources completed the Tactical Basin Plan for the Black and Ottauquechee Rivers in June 2018.

Towns receive additional consideration on grant funding applications if it adopts higher levels of protection for flood hazard areas. These protections also qualify towns for reduced cost share

after a declared disaster for damage to public infrastructure including roads and culverts through the Emergency Relief and Assistance Fund (ERAF). For disasters after October 23, 2014, the State of Vermont will contribute an additional 7.5% toward the costs. Currently for Reading, following disasters the State contributes 7.5% of the cost share as updates to the Local Emergency Management Plan (LEMP) are ongoing. Once the LEMP is complete, the rate will improve to 12.5%. In July 2019, Reading adopted river corridor protections in the zoning bylaws, which will increase the towns ERAF rate to 17.5%.

Municipal roadways that are in close proximity to surface waters are now subject to a Municipal Roads General Permit (MRGP). This will involve maintaining an inventory and implementing a stormwater improvement plan for these road segments. These road segments are expected to be fully compliant with the standards included in the General Permit by December 31, 2036. It will be costly to bring town roads into compliance. Funding assistance is available through a variety of programs, such as Better Roads, Municipal Roads Grants-in-Aid, Municipal Highway and Stormwater Mitigation, and the Transportation Alternative Program. The Town should work with ANR on priority watershed improvement projects identified in river corridor plans and the Town's road erosion inventory and improvement plan (see Appendix D for a tentative list of projects).

Fisheries

The surface waters of Reading are rich in coldwater (trout) fishery resources. Streams, from the small headwater brooks to the more lowland rivers, support wild trout populations. The North Branch of the Black River upstream of the falls at Felchville, including its tributaries (Darby and Alder Meadow brooks) provide habitat for naturally reproducing brook trout. Below the falls, where the waters tend to be warmer, wild brook trout are largely supplanted by brown trout. Similarly Mill and Bailey brooks are habitats for wild populations of both trout species. The VFWD stocks Mill Brook to supplement natural trout production and provide additional sport fishing opportunities.

Tropical Storm Irene flood damage recovery activities had significant negative effects on fish habitat and fish populations, including trout populations. Extensive stretches of the North Branch of the Black River and Bailey Brook were channelized which significantly impaired habitats.

Unlike the streams, Reading and the Knapp ponds do not provide habitat conditions capable of supporting sustainable wild trout populations. Their shallow depths and water sources do not provide year round cold water temperatures needed to sustain trout populations. Therefore, the two Knapp Ponds are stocked annually with yearling trout: the more downstream impoundment, Pond #1, stocked with rainbow trout, and Pond #2 with brook trout. Reading Pond is not stocked but is populated with several warmwater fish species, e.g. golden shiners and creek chubs.

The ability of streams in Reading to support wild trout populations is dependent on the quality of the water (e.g., absence of pollution), adequate seasonal stream flows, maintenance of cool water temperatures through the summer months, and provisions for spawning areas and an abundance of fish cover (i.e., places for fish to find safe refuge). Stable stream banks, which are vegetated with trees, shrubs and other plants and left largely in an undisturbed, natural condition are critical to maintaining habitat necessary to the health and survival of trout populations.

Native brook trout

Other impacts on streams affecting fish and wildlife as well as Reading's transportation infrastructure are culverts and bridges. Design and condition of stream crossing structures determines whether a stream behaves naturally and whether fish and other aquatic organisms are able to move within the stream corridor. Undersized culverts, a common situation, restrict stream flow particularly during high flow events resulting in increased streambed scour and bank erosion both up and downstream of the crossing. Blocked culverts compromise the structural integrity and safety of the road crossing and may result in damage to adjacent properties. Numerous private and public bridges and culverts failed in Reading as well as other towns throughout southern Vermont as a result of Tropical Storm Irene on August 28 and 29, 2011 primarily due to their being undersized and incapable of handling the 100-year flood frequency stream flow event.

Undersized culverts can also block the movements of fish, such as brook trout, and other aquatic species (e.g., amphibians, reptiles and small mammals) from accessing critical habitat areas within the stream corridor. This effect results in habitat fragmentation. State and federal regulations and programs require aquatic organism passage be taken into consideration during the design of new and replacement road crossings. Stream crossing design concepts and considerations for aquatic organism passage are discussed in a VFWD document *Vermont Stream Crossing Handbook*. The Reading Highway Department should be made aware of these requirements and provided training opportunities as necessary.

Riparian Buffers

A riparian buffer is a band of vegetation located next to a body of water such as a stream or pond shoreline. Maintaining vegetated buffers of native trees and shrubs is the easiest and most cost effective way to improve water quality in streams, rivers, lakes, and ponds. Buffers filter runoff from roads, lawns, stables, farms, junkyards, and construction operations that may carry fine sediment, nutrients, oils, fertilizers or other pollutants. The roots of vegetated buffers can also help to hold stream banks in place preventing erosion. By reducing the speed of runoff, buffers allow water to infiltrate into the soil and therefore reduce the volume of runoff into the stream. This has the combined effect of preventing flooding and recharging the groundwater supply.

Retention of mixed age class trees along streams and shorelands is important to habitat formation necessary to maintaining healthy, abundant fish and wildlife populations that are dependent on aquatic systems. Trees contribute organic materials (leaves, limbs, logs, etc.) that are important to habitat formation and increasing food abundance. For example, large wood that falls into the stream channel creates habitat complexity (deep pools, refuge cover) necessary for trout to evade predators, endure flood events, and successfully survive winter. Large trees also shade streams maintaining cool water temperatures necessary for trout survival. Stream banks and pond shorelands lacking large trees and other natural vegetation provide poor habitat for fish and wildlife.

The effectiveness and functions of buffers vary according to soil type, slope, and the type of vegetation. Generally, the wider the buffer, the more effective it is in filtering pollutants, protecting banks, and providing habitat areas for fish, birds and other wildlife. Fifty (50) feet of natural vegetation including trees (measured from the top of the bank) is the minimum buffer width recommended next to all streams, rivers, lakes and ponds. The Vermont Agency of Natural Resources (VANR) provides guidance on appropriate sized buffer widths for protection of water quality and aquatic habitat in adjacent waterways.[7]

Buffers clearly provide benefits to water quality, fish and wildlife habitat, and can offer some protection against flood damage and erosion. However, some flexibility in buffer type and width may be considered for projects or activities that provide significant low impact public benefits and do not substantially diminish buffer benefits (such as properly located, constructed and maintained recreation paths). The Town of Reading should consider more protective buffer requirements than currently provided under Section 3.10 of the Zoning Ordinance, such as recommendations developed by the VANR.[8] Tropical Storm Irene clearly demonstrated that the placement of structures (e.g. houses and other buildings) close to streambanks increase their exposure to flood events and loss or substantial damages with costs to property owners and the Town.

Flood Resilience

According to Reading's All-Hazard Mitigation Plan, floods are the most probable hazard event in Reading, with flash flooding posing the biggest risk for the community. (See the Water Resources Map that shows surface waters as well as flood hazard areas and river corridors.)

The floodplain for the North Branch of the Black River and tributaries that run into the North Branch widens out just south and east of the village of Felchville. According to soils maps from the Natural Resource Conservation Service, this area also contains prime agricultural soils. North of Felchville is the Mill Brook watershed with flood hazard areas lying next to it and its two principal tributaries, Reading Hill Brook and Bailey Brook. Maintaining an undeveloped

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[7] Vermont Agency of Natural Resources. 2005. Guidance for Agency Act 250 and Section 248 Comments Regarding Riparian Buffers. Vermont Agency of Natural Resources, Waterbury.
[8] Ibid.

floodplain can provide a holding area for flood waters and can be important for filtering storm water runoff before it enters a waterway. Maintaining this area can also ensure that natural changes in channel form and alignment can be accommodated by the landscape. This natural re-adjusting that a river makes can prevent problems downstream in the future. Rivers and streams move over time. The mapped river corridors delineate those areas where development is subject to erosion hazard risks.

Tropical Storm Irene demonstrated the importance of not allowing residential and commercial structures in floodplains and river corridors. These areas were inundated during the flood and were depositional sites for sediments and debris transported downstream during the event. While agricultural uses were negatively affected by flooding, losses were temporary and relatively less costly than if floodplain development had been permitted. A common but misguided post-flood response practice is to deepen stream channels and construct berms adjacent to floodplains to protect property from future flood damage. However, it has been proven such practices increase flood damage vulnerability rather than preventing or lessening the threat.

FEMA special flood hazard areas are designated along only the larger rivers and streams. Inundation flooding is possible along other watercourses. New development adjacent to streams are encouraged to avoid locating too close to stream banks in order to promote flood resilience.

Wetlands, as discussed elsewhere in this plan, serve a number of important functions, including flood retention. Maintaining this functionality of wetlands contributes toward mitigating flooding impacts in Reading.

Maintaining forest cover in rural upland areas and steep slope areas helps to maximize infiltration of water into the soil, and minimize or slow down stormwater runoff in ways that mitigate flooding hazards to downstream locations. Efforts to minimize heavy cutting in forestry activities, limiting the extent and densities of developments, and properly managing stormwater in these uplands areas will help contribute toward community flood resilience.

Reading's zoning bylaws include provisions for fifty-foot vegetated buffers along wetlands, streams, rivers and public ponds in order to prevent erosion and sedimentation of surface waters. The Town adopted flood hazard regulations as an element in the zoning bylaws in order to minimize future flood damage and make properties eligible for flood insurance, whether located within or outside of the flood hazard areas. River corridor regulations were established as part of the zoning bylaw amendments that the Reading Selectboard adopted in July 2019.

Adequate culvert and bridge sizing is an important consideration for reducing the potential for damages from future floods. In 2019, the Selectboard adopted new standards that require new or replaced bridges or culverts to be sized per the VTrans Hydraulics Manual and ANR Stream Alteration standards.

Significant Wildlife Habitat

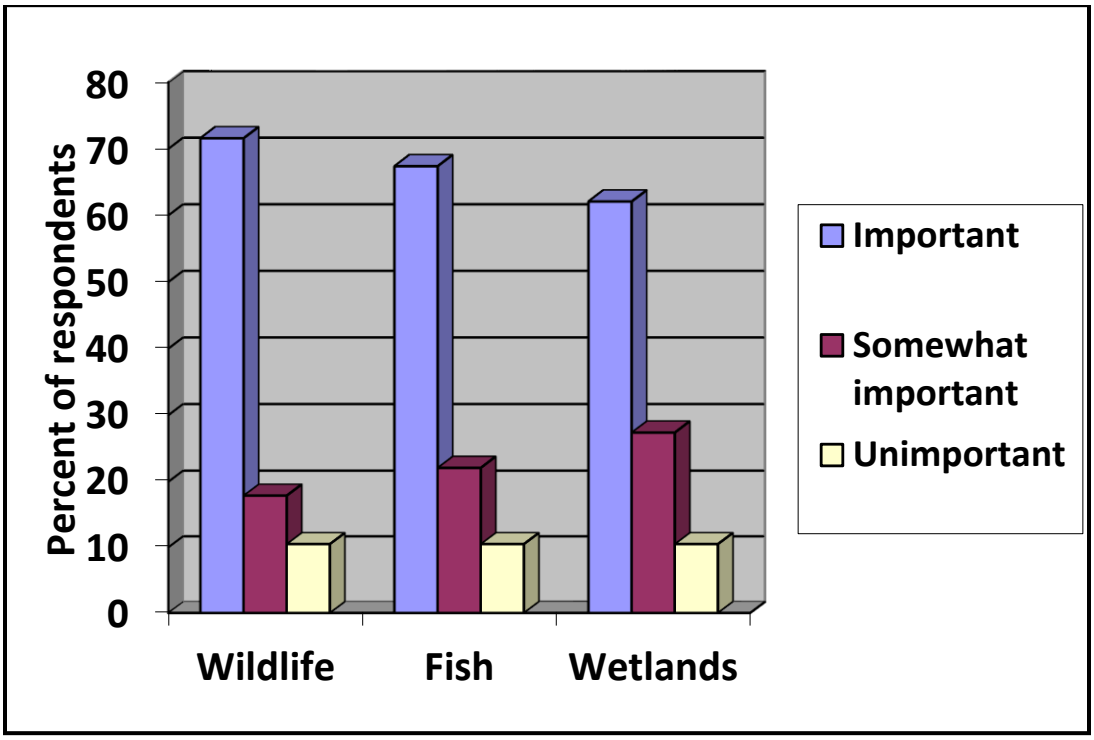
Wildlife is plentiful throughout Reading, and nearly all of the land in Town is habitat of some kind. Yet some habitat areas are more critical or "significant" than others for the overall

wellbeing of wildlife species. Habitat is considered more significant when it supports rare species or an unusually large number of species; provides an abundance of food, maternity sites or other resources; provides a buffer for wildlife against the effects of development; or when it represents a small percentage of the landscape. The VFWD may consider protection of significant habitats as Necessary Wildlife Habitat under criterion 8(a) of Act 250. Several of the significant habitats that exist in Reading are discussed below.

The Reading Planning Commission has surveyed the residents of the Town to identify short and long term challenges facing the community and those most important to its citizens. In 2007, the Town of Reading received a municipal planning grant through the Vermont Department of Housing and Community Affairs to study forest fragmentation in the Town and identify ways to avoid negative consequences. Forest fragmentation occurs when large contiguous tracts of forest become disjointed by land division and conversion to non-forest uses (house lots, open fields, roads, etc.). The result is land that is less capable of supporting wildlife and species diversity, and the loss of working forests (e.g. timber, firewood and maple production), all important to the local economy and traditions. The 2007 survey (*Town of Reading Forest Fragmentation Project Final Report*) found that 88% of respondents value the Town's forestlands for its wildlife habitat value followed by recreation, 61%; forestry, 48%; and hunting, 41%.[9] More results are provided in the Appendix C. These results are similarly in line with Town citizen opinions expressed during a 2011 survey responded to by 108 respondents. Ninety-seven survey participants responded to the survey question "How important is it to you that the following natural, scenic and historic resources are protected or preserved?" Of the 15 response options 71.6% of respondents identified critical wildlife habitat as important followed by developing villages in a way that preserves the Town character while promoting growth, 69.1%; critical fish habitat, 67.4%; and undeveloped large tracts of forest lands, 66.0%.

[9] Fidel, J., and B. Shupe. 2008. Town of Reading Forest Fragmentation Project Final Report. Report of Vermont Natural Resources Council for the Reading Planning Commission.

Figure 2.1 – Importance of protecting or preserving Reading's wildlife, fish and wetland resources (2011 Town Survey). Total number of respondents replying to questions was 95 out of 108.



With assistance of the VFWD, the Planning Commission has identified several significant habitats in Town: critical deer wintering habitat, and travel corridors important to populations of deer, black bear, moose and bobcat. The Planning Commission has studied a significant wildlife habitat overlay district (SWHOD) and standards for land development within the district in a manner that minimizes and mitigates impacts on these wildlife resources.

Deer Wintering Areas

Deer wintering areas vary in size from a few to over a hundred acres. These areas offer essential relief for deer from harsh climatic conditions by providing protection from deep snow, cold temperatures and wind chill. Deer wintering areas are characterized by dense canopy coverings of softwood trees, a favorable slope, usually southerly or westerly aspects, generally moderate elevation, and low levels of human disturbance in winter. The softwood trees that comprise these areas are most commonly hemlock and white pine. Wintering areas do not change significantly from year to year and can be utilized by generations of deer over many decades if appropriate habitat conditions are maintained. Deer annually migrate, often several miles, from spring through fall habitats to wintering areas. A single winter range often serves deer from large areas of Town and in some cases from surrounding towns as well. Residential, commercial or industrial development within or adjacent to a deer wintering area decreases the amount of land available to deer and impacts the Town's and regional deer population, eventually decreasing the number of deer within our Town. Snowmobile and cross-country ski trails located within deer wintering habitat can lessen the effectiveness of the habitat for deer. Such human activity in wintering habitat can disturb deer and cause them to tax limited energy reserves in order to avoid human interactions and ultimately reduce their ability to survive the winter. The VFWD has mapped deer wintering areas in Reading (see Significant Habitat Map). Most of these areas, especially the higher elevation ones, are of poor quality and do not usually support many animals. The highest quality remaining winter habitat is found in the vicinity of where VT Route 44 meets VT Route 106 along the border that the Town shares with the Town of West Windsor.

In addition to benefits for deer, dense softwood stands provide critical winter food supplies for a variety of other wildlife including porcupines, snowshoe hares, foxes, fishers, bobcats, and a variety of birds (e.g. northern finches, crows, ravens). Other wintering birds routinely find shelter from winds in these conifer stands. Deer wintering areas should be protected from development and winter recreational trails whenever possible.

Through Vermont's Act 250, some protection is available under Criterion 8(A) - Wildlife Habitat and Endangered Species, which provides a detailed system to weigh evidence for a project and determine if a permit can be allowed. Only commercial development projects over one acre in size or subdivisions of more than six lots are reviewed under Act 250 in Reading.

Bear Habitat

Bears range over very large tracts of land in search of food. An adult male will range over a 25- to 50-square-mile area, while a female will cover between 10 and 15 square miles. Since bears are naturally wary animals, they rely on undeveloped travel corridors to link and provide access to suitable habitat. If travel corridors are fragmented, bear populations will be threatened. According to the VFWD, the more remote forests of Reading are important as "bear production habitat" where adult females live with their offspring and "seasonal bear habitat" which are frequently used by bears, including some cub-producing females. These habitats contain critical seasonal feeding areas (see Significant Habitat Map). Reading has two regionally important road crossing areas within bear travel corridors; one is in the vicinity of the "moose crossing" area (in vicinity of the so-called Alps) on the Reading–Tyson Road and the other on Route 106 just south of the new firehouse and emergency services building.

In order to promote the stability of the multitude of animal populations that rely on contiguous or interconnected wooded areas, local and regional planning should consider remoteness and connectivity as important environmental qualities.

Moose Habitat

Like bears, moose range over large areas in search of food. High elevation conifer forests, beaver ponds, and other wetland areas are particularly important as they provide the food and water moose need to survive. In Reading, the "moose crossing" on the Tyson Road at the west edge of Town is the most heavily used site as well as a popular viewing area for moose. The area is part of the Arthur Davis Wildlife Management Area while the road is owned by the Town. "Moose crossing" signs warn drivers to slow down in this section as there have been numerous collisions of automobiles and moose.

Wildlife Crossings

With assistance from the VFWD, the Planning Commission identified portions of the Town that function as wildlife travel corridors important to populations of deer, bear, moose, bobcat and other far ranging wildlife dependent on critical habitats not only within the Town but also in the surrounding towns. Travel corridors are physical connections between discrete habitats used by wildlife for access to food, water, mates and shelter. Wildlife establish pathways to access habitat important to their survival and procreation. Their needs may vary seasonally and more frequently than not overlap town lines. Humans can modify the landscape through the creation of large expanses of open land for agricultural activities or the construction of buildings and transportation infrastructures that modify or intersect established travel corridors. The results are

that wildlife abandon critical habitats and wildlife as well as humans are subject to new hazards such as vehicular collisions as wildlife cross roads.

Within the greater Reading area are important wildlife use areas connected by travel corridors. To the west and north are several large tracts of state owned land (Arthur Davis Wildlife Management Area in Reading and Plymouth, Camp Plymouth State Park in Plymouth, and Coolidge State Forest in Plymouth, Woodstock), to the south is Hawks Mountain Wildlife Management Area in Cavendish and Baltimore, and to the east lie Little Ascutney Wildlife Management Area, Ascutney State Forest and Park, and West Windsor Town Forest. Conserved lands to the west and east are linked by a swath of lands in Reading passing through Keyes Mountain eastward just north of Felchville village. Similarly a north-south travel corridor passed the Alps, in the southwestern part of Reading connecting the Arthur Davis Wildlife Management Area with important wildlife lands to the south. The moose crossing and viewing area on the Tyson Road is a well-known corridor for moose and bear. Maintaining wildlife access to and the functionality of these corridors is important to the abundance and health of wildlife populations within our Town as well as the surrounding region and the public's enjoyment of these wildlife resources.

Habitats for Rare and Endangered Species

Rare plants and animals are important because some are indicators of unusual habitats or of colder (or warmer) climates in Vermont's distant past. Some can serve as indicators of declines in environmental quality. Some species may provide compounds for medicines and agricultural or industrial products. Finally, some are attractive and add beauty to the landscape. Many uncommon species will disappear if not recognized and given some form of protection. The VFWD has identified and mapped rare and endangered species and natural communities throughout the state. Only one site in Reading is known to have a rare or endangered species although more may be discovered in the future. In order to protect these important natural areas, habitat areas or natural communities have been identified by points on the map but do not reveal which species reside in those areas (see Significant Habitat map). These natural resources may provide recreational and educational opportunities to Town residents. Most rare species are protected by State or Federal laws.

Forest Resources

Forests contribute significantly to the Town's rural character, protect air and water quality, and support biological diversity. Woodlands provide critical habitat for many species of wildlife, including white-tailed deer, moose, black bear, wild turkey and a variety of songbirds. Forests are also important to the local economy by providing products such as lumber, pulpwood, fuel wood, and maple sugar. Outdoor recreation is a way of life for most of the Town's residents and is an attraction for tourists. Woodlands support a variety of recreational pursuits including hunting, trapping, hiking, horseback riding, cross-country skiing, snowshoeing, snowmobiling, and nature and foliage viewing. Forestland in Reading also supports some low-density residential uses.

According to the current land use/land data available through the Vermont Center for Geographic Information (VCGI) that was based on 1994 orthophotos, approximately 89% of Reading's 26,624 acres are classified as forested. The dominant forest types in decreasing order of abundance are northern hardwoods, spruce-fir, hemlock, and pine. Oak stands occur within the Town as isolated pockets.

Most of the forests in Reading are under private ownership. However, significant acreage is publicly owned as described at the beginning of this chapter. Within the Knapp Brook area are nearly 121 acres on which the Town owns the timber rights and receives the revenues generated by the sale of timber.

Forests are threatened by fragmentation caused by roads and residential development, and poor logging practices. Development in forested areas should be encouraged to occur at the periphery where access can be provided by existing roads. Development should avoid critical wildlife habitats and other biologically sensitive areas.

Priority forest blocks and habitat connectors serve important wildlife and ecological functions. Certain riparian corridors and smaller forest blocks are important as connections between priority forest blocks. Many of Reading's forest blocks are part of a large complex of forestlands that enable animals to travel from the Green Mountains and cross into New Hampshire. The Current Land Use Map generally shows the extent of forested land cover throughout Town. The inset map on the Significant Wildlife Habitat Map shows large forest blocks that support biodiversity. The Future Land Use Map depicts the Significant Wildlife Habitat Habitat Overlay, which was developed based on the 2008 Forest Fragmentation Project and is now adopted as part of the zoning bylaws. The Overlay is generally consistent with the Forest Blocks and Habitat Connector information available through the Agency of Natural Resources BioFinder tool.

Use Value Appraisal Program

The Use Value Appraisal program provides an incentive for private landowners to properly manage woodlands throughout the state. The program provides reduced property tax assessment for qualifying owners of managed forest and agricultural land. The State of Vermont reimburses communities for some of the tax revenue that is lost due to enrollment of land under the program. In 2011, Reading had 84 parcels or 11,576 acres enrolled in the program. Combined with state-owned land, 18,132 acres or 68% of the land in Reading is being managed for forestry and wildlife and/or agriculture. The Use Value Appraisal Program and conservation easements protect forest and agricultural lands and the uses they support.

Air Resources

Reading does not have a heavy industrial base or concentrated population that has led to an air quality problem. Accordingly, the Town's good air quality constitutes an environmental resource that has aesthetic as well as human health benefits. Elements that could negatively affect air quality include: odors, radiation, chemical vapors, motor vehicle exhaust, power plant emissions, and particulate matter from dust, smoke or fumes. At this time, the most likely

problems for Reading are dust from gravel roads in the summer and smoke from wood burning equipment in the winter. The Town can control road dust with chemicals but must do so in a manner that protects the environment as well as residents' motor vehicles. The Town should also encourage residents buying or replacing a wood stove to select a model that uses a catalytic combustor or alternate technology that improves efficiency and reduces smoke. Similarly, Reading should require that all outdoor wood-fired boilers purchased or used by residents comply with the Vermont Agency of Natural Resources Environmental Protection Regulations.

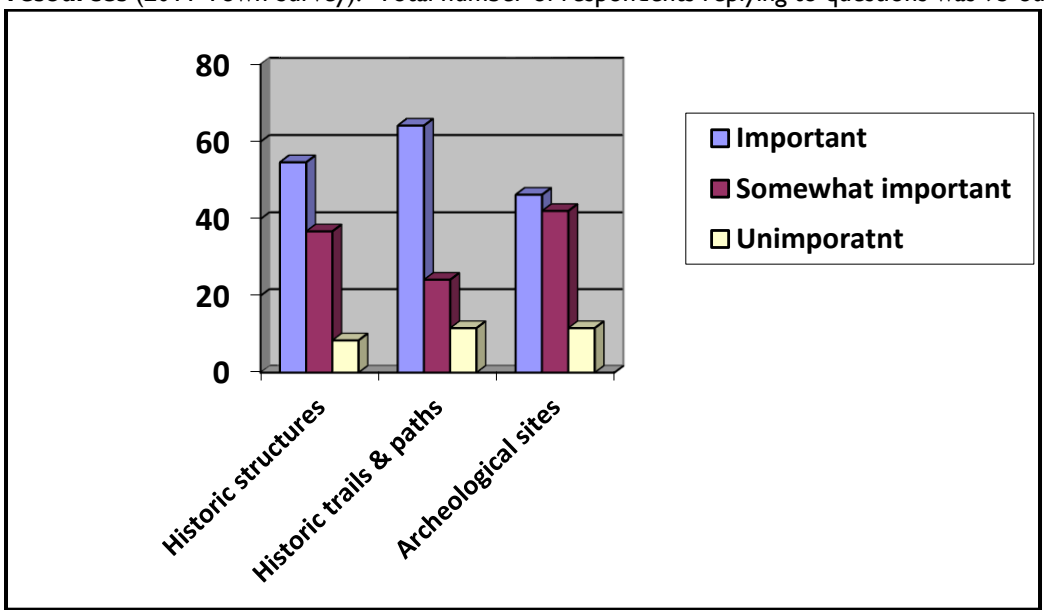
Cultural Features

Historic Sites and Structures

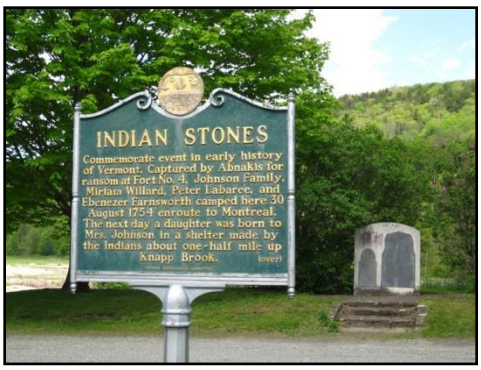
Table 2.1 includes eight places that are of local historic significance but are not listed on the State Historic Sites and Structures Survey. The Sites and Structures Survey includes 28 properties that have been considered by the State Department of Historic Preservation to be historically significant. Two sites, Indian Stones and the Stone Schoolhouse are included on the National Register of Historic Places. Eleven of the sites on the survey are located in the village of Felchville and four in the village of South Reading.

A high percentage of Reading residents responding to the 2011 Town Survey indicated that they view Town historic structures, trails and pathways, and archeological resources to be important cultural resources.

Figure 2.2 – Importance of protecting or preserving Reading's historical and archeological resources (2011 Town Survey). Total number of respondents replying to questions was 95 out of 108.



Archeological sites

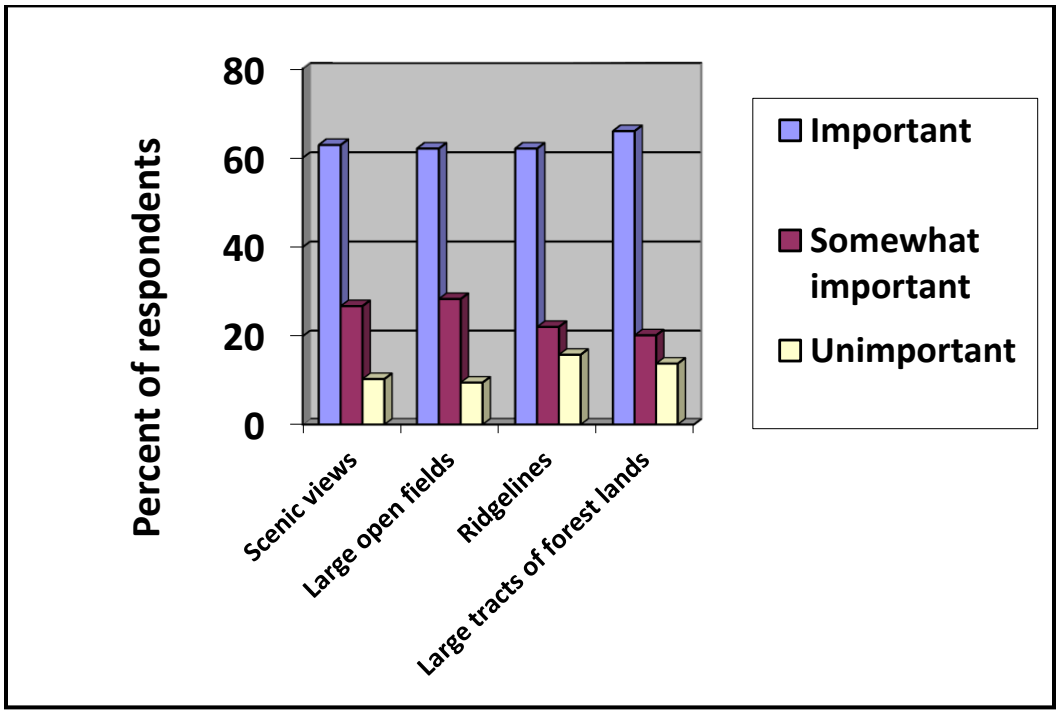


Generally, flat land immediately adjacent to rivers is considered an archeologically sensitive area due to the likelihood that Native Americans would have used these areas for camps. These areas often require an archeological survey prior to being developed. The "Indian Stones," on VT Route 106 south of Felchville and the National Register of Historic Places, mark the site of an Abenaki Indian encampment where Susannah Johnson gave birth to a daughter while being held captive with her family by the Indians in 1754. The encampment was thought to be on Knapp Brook, upstream from where it crosses under Route 106. Stone walls and stone structures from early settlements should also be considered for special protection.

Scenic Views

Several areas in Reading are known regionally for their scenic views and landscape. Scenic roads that have been identified in previous town plans include sections of Tyson Road in and west of South Reading village, North Puckerbrush Road; all of Caper Hill Road, Jenne Road and Grasshopper Lane.

Figure 2.3 – Important of protecting or preserving Reading's scenic views, open fields, ridgelines, and large forests (2011 Town Survey). Total number of respondents replying to questions was 97 for scenic views and 95 for other categories out of 108.



Siting of telecommunications towers and wind towers and their access roads can significantly harm scenic views such as ridgelines. See the Utilities and Facilities chapter for more discussion on policies for locating these structures in Reading.

Agricultural Land

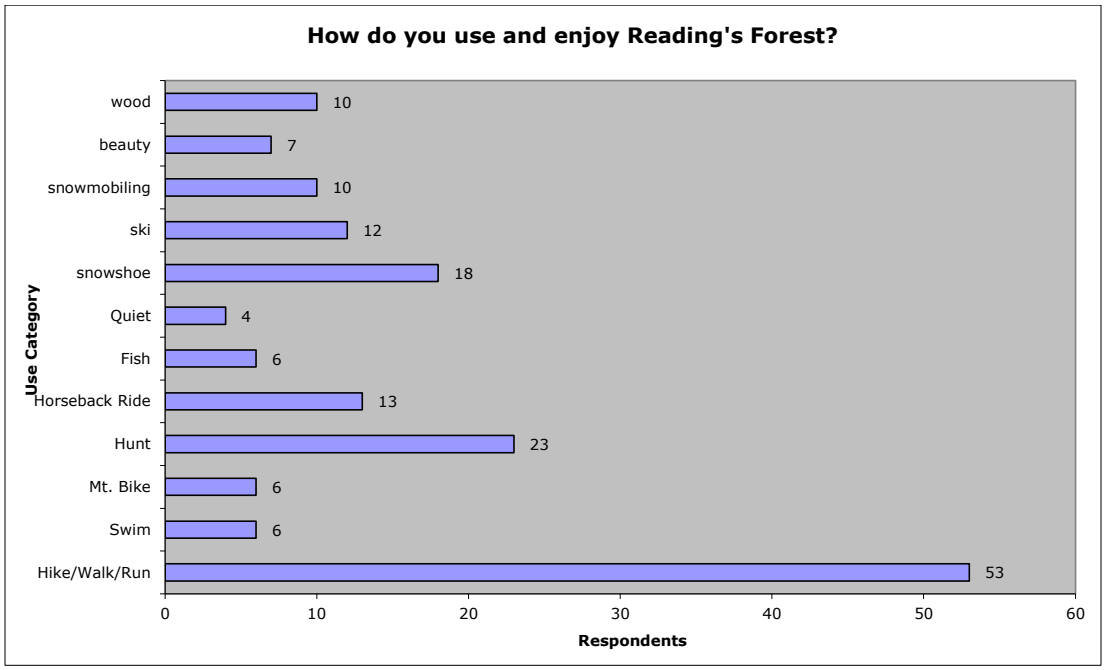
Land presently in agricultural use may also be of natural, historical, cultural, and scenic significance. (See the agricultural soils section of this Chapter for more information.) The Agricultural and Cultural Resource Map shows land that is significant for its agricultural use and historic value, as well as soils that the Natural Resource Conservation Service has determined are "prime agricultural soils." The inventory of significant natural and cultural features (Table 2.1) lists nine farms that are in active agricultural use. On the 2011 Town Plan Survey, 76.0% and 61.7% of respondents, respectively, said that productive agricultural lands and undeveloped large fields and pastures should be protected or preserved. The application of local and state laws should reflect Reading's desire to protect this important part of its heritage.

Higher density residential development should also take place in and around the villages and hamlets. Alternatively, this development should blend into the surrounding rural areas to the greatest extent possible, helping preserve open space and historic land use patterns. The use of "clustering" techniques in design is encouraged where appropriate. The placing of structures in the center of large lots, especially in existing fields and other open spaces, is specifically discouraged.

Recreation

Residents of Reading have traditionally maintained a strong connection to its land, water, and wildlife resources through outdoor activity and recreation. In 2007, the Town of Reading received a municipal planning grant through the Vermont Department of Housing and Community Affairs to study forest fragmentation in the Town and research ways to avoid its negative consequences. The study queried Reading landowners about what they value and enjoy in forestlands. The following graphs reflect the input of 103 survey respondents illustrating this strong connection people have with recreational opportunities and forests.

Figure 2.4 – How do you use and enjoy Reading's forests? (Town of Reading Forest Fragmentation Project: Final Report, Appendix C)



This tradition is essential to the nature of rural life, and the Town should strive to preserve it. Lakes, ponds and streams offer fishing for residents and visitors. Legal trails and Class 4 (unmaintained) Town roads are important resources for resident and visiting recreationists for hiking, skiing, mountain biking, and snowmobiling. The Town should work to ensure that these areas remain accessible for a variety of recreational activities. Some activities, such as operating all-terrain vehicles (ATVs) may be harmful to fragile habitat areas such as wetlands and steep slopes, and should be limited or avoided in these areas.

The topography, natural resources, and rural nature of Reading make it a particularly attractive place to locate recreational and other visitor-based facilities, such as campgrounds, residential summer camps, or hunting camps. It is important that the Town realize the benefits of these facilities. At the same time the Town must make sure that their presence does not detract from Reading's character or quality of life. Therefore, these types of facilities should be supported provided that they:

- Do not result in a volume or type of traffic on local roads which those roads are not designed to carry;
- Do not substantially diminish access to an established public recreation resource;
- Do not require an unreasonable investment in public utilities;
- Do not threaten surrounding drinking water supplies, critical habitat or other fragile areas;
- Maintain Reading's rural character and employ design methods consistent with the

Objectives of this Plan.

Natural and cultural resources that are identified in the Natural and Cultural Resource Inventory of this Plan, or that are otherwise significant, should be protected and preserved whenever possible.

Preservation Strategies

It is the policy of the Town of Reading to preserve and protect rare and irreplaceable natural areas, scenic and cultural resources, and significant historic features. Such places are real and tangible assets. Therefore, altering or destroying these assets is detrimental to the Town, and is discouraged by the Town. The Town encourages land stewardship, so that present and future generations can use and enjoy these assets.

Natural areas, scenic and cultural resources, and historic features considered significant and worthy of protection include, but are not limited to, those included in the Plan's Inventory of Natural and Cultural Resources, and shown on the accompanying maps. Features of similar type and character may also be significant, and should be protected when discovered. Specific policies regarding each of the categories are below.

The goals and objectives below are designed to provide the Town and its residents with a framework and a resource guide for protecting Reading's important natural, historic, and scenic features. They should also serve as a tool for increasing local input into the application of state and federal regulations. While they may be used to apply and interpret land use restrictions when appropriate, these policies are not meant to be restrictive in and of themselves. Instead, they should help to create opportunities for maintaining Reading's unique and valuable quality of life. The final, and most important, intent of these policies is to instill and encourage a responsible land stewardship ethic in Reading's residents and visitors.

Goals and Action Steps (Goals are numbered, Action Steps are indicated by an arrow)

1. Protect and conserve critical and significant terrestrial and aquatic habitats necessary to sustaining healthy and abundant wildlife populations and rare natural communities within the Town for the recreational, educational and ecological services they provide the community. Critical natural resources include but are not necessarily limited to deer wintering areas, wildlife travel corridors, streams, wetlands and vernal pools, and natural communities.

   - Identify, catalog and map significant habitats within the Town. Consult with the Vermont Agency of Natural Resources and others for most current information.
   - Increase public awareness of critical natural habitats and communities and wildlife populations occurring in the Town; communicate how these resources are affected by current and future land use activities and present the best stewardship measures needed to conserve them for current and future generations of Reading residents.
   - Protect and conserve important wildlife corridors from encroaching development and incompatible activities, such as road expansion or development of new roads.

- Research and adopt as appropriate zoning bylaws that protect aquatic and riparian habitats from development and contribute to improved flood resiliency, including but not limited to more effective stream protection buffers.
- Maintain and protect the functional integrity of deer wintering areas.

2. Preserve and protect ridgelines and outstanding viewsheds that are important to the Town's rural character.

   - Protect important ridgelines within Town from development that adversely alters the natural character of these landscape features. Strengthen the zoning bylaws and design standards to avoid, minimize and/or mitigate development impacts.
   - Identify and map Reading's important viewsheds and amend zoning bylaws to maintain significant scenic views to the fullest extent possible.
   - Investigate the possibility of using the Vermont Scenic Byways program to promote and/or protect outstanding scenic roads in the Town.

3. Ensure the viability of working lands associated with a sustainable forest products economy due to their significant contribution to contiguous forests, fish, wildlife, and natural communities within Reading as well as the Town's and regional economic interests.

   - Identify and map patches of contiguous forest, that is those that are relatively large, in good condition (e.g., relatively unfragmented and undeveloped), and preferably with connections to other patches of contiguous forest in the Town as well as connecting to those in abutting towns.
   - Support efforts that protect and conserve forest lands identified as critical habitats and natural communities via acquisition or easements and that will be managed in accordance with a forest-wildlife management plan. The Vermont Department of Forests and Parks offers assistance to private landowners interested in conducting sustainable forest management.

4. Preserve and protect historic and cultural features within the Town whenever practicable. These include historic buildings, stone walls, cellar holes, cemeteries, and archeological sites

   - Promote the protection and upkeep of Reading's historic buildings, structures, stone walls, cellar holes, cemeteries and monuments.
   - Consult with the Vermont Division of Historic Preservation for current inventory of archeological sites located in the Town and advice on how best to conserve these sites.
   - Work with Reading Historical Society, Southern Windsor County Regional Planning Commission, and Vermont Division of Historic Preservation to assess the possibility of including additional buildings, structures, or districts on the State or Federal Register of Historic Places.

5. Preserve and protect lands currently in agricultural use.
   - Encourage keeping active agricultural lands productive, ecologically healthy and economically viable.
6. Review development within all flood hazard and river corridor protection areas in order to mitigate risks to public safety, critical infrastructure, historic structures and municipal investments.
   - Coordinate with Agency of Natural Resources and the Southern Windsor County Regional Planning Commission in developing a stream geomorphic assessment of the Mill Brook.
   - Once the Mill Brook river corridor protection area is determined, update the All-Hazard Mitigation Plan in order to inform this Town Plan per the new requirements of 24 V.S.A. §4382(a)(12).
   - Consider additional strategies to mitigate flood and erosion risks, such as adopting standards that go beyond NFIP minimums and additional mechanisms to reduce erosion risks within river corridor protection areas.
7. Maintain the Town's good ambient air quality.
   - Town equipment should meet emission standards.
   - The Town should take an active role in the review of development proposals or plans that could adversely affect air quality.
   - The Town should control excessive road dust in an environmentally sound manner that is not damaging to residents' motor vehicles.
   - The Town should encourage residents buying a new woodstove to select a model that uses a catalytic combustor or alternate technology to improve efficiency and to improve air quality.
   - Reading should consider an ordinance that requires all outdoor wood-fired boilers purchased or used by residents after March 31, 2010, particularly those in the villages, be certified as Phase II and comply with the Vermont Agency of Natural Resources Environmental Protection Regulations, Chapter 5, Section 5-204.

Policies

1. Rare and irreplaceable natural areas within the Town shall be protected from development activities and uses that threaten their biological integrity and ecological value. Development in and around these areas may be limited in scope and intensity; soil erosion and pollution of water resources must be controlled in these areas.
2. Private development, along with construction and maintenance of the public infrastructure, shall be designed to preserve important historic and cultural features in their historic state and to enhance the public's access to and appreciation of these resources where appropriate.
3. Scenic views, especially from public roads and trails, are important social and economic

resources to the Town. Development within these viewsheds shall occur in a manner that does not diminish their scenic value. Innovative development design, including appropriate placement of structures and adequate visual screening may be required to protect these scenic views.

4. The Town shall encourage and support the use of Vermont's Accepted Agricultural Practices in order to maintain productive and economically viable agricultural land while protecting environmental quality and natural resources.
5. The Town recognizes the importance of healthy native forest ecosystems to the forestry economy, and therefore encourages the application of Acceptable Management Practices in all silvicultural projects within the Town. Sustainable and sensible logging practices are encouraged.
6. The Town should encourage landowners to conserve and properly manage woodlands utilizing education and awareness of State resources or through the assistance of a Town sponsored Conservation Commission.
7. Where development of forested land threatens critical wildlife habitat and other biologically sensitive areas, the Town shall encourage, or specify as necessary, the placement of structures toward the periphery of the property, leaving interior areas contiguous and undisturbed.
8. The Town shall work with state and federal agencies, whenever possible, to develop and implement strategies to protect important natural, scenic and historic resources from detrimental effects of development.
9. The Town shall give careful consideration to the fragile and scenic nature of steep slopes (over 25%) and ridgelines when determining what kinds of development are appropriate in these sensitive areas.
10. Winter recreational trail locations should consider deer wintering areas, fragile habitats and the guidelines and policies of local and State agencies.
11. Development shall meet the standards for surface water buffers (Section 3.10) and flood hazard review (Section 5.5) in accordance with the zoning bylaws.

Chapter 3

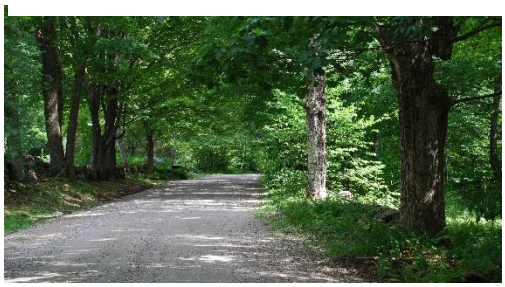
TRANSPORTATION

Transportation and land use have an interdependent relationship. Changes in land use that create significant increases in traffic may require improvements in transportation facilities such as roads and bridges. These improvements can have high financial, social, and environmental costs. Conversely, improvements in transportation facilities can create enormous development pressures on adjacent or nearby land. With careful planning, those improvements can create beneficial development opportunities, as well.

Route 44 near Route 106 and 1815 House at Mill Brook stream crossing.

Reading has a variety of roadway networks:
State highway Route 106 and Route 44.

- Several Town roads that act as collectors (e.g. Tyson Road).
- Smaller rural roadways accessing homes and neighborhoods.
- The many trails and informal connections and linkages supporting hiking, biking, horse activities, ATV's, hunting and cross-country skiing, snowshoeing and snowmobiles.



Flat Iron Road, example of Reading's tree-canopied roadways.

According to the 2011 Reading Town Plan Survey, some of the issues of greatest concern over the next five years are:

- Keeping the tax rate level or increase in small steps.
- Enforce the speed limit through town and on back roads.
- Keep up on the road maintenance and resurfacing.
- Better visibility at Tyson Road and Route 106 intersection.
- Promote public transportation such as a bus stop/park-n-ride.
- Preserve stone walls and view sheds along roadways.
- Minimize traffic shortcuts such as along Puckerbrush to Tyson Road and Route 106. The higher traffic volume and speed discourages walking or horseback riding.

Cemetery at Hurricane Hill shows an example of Reading's stone walls. Embedded in the stone walls are the iron hoops to tie horses.

From the 2011 survey responses and from the Town Plan Forum held in November of 2003, it is clear that those in the community who participated in these events were more concerned about keeping the rural character of the Town intact and addressing some of its immediate needs rather than widening roads to encourage additional development and traffic.

Some of those immediate needs listed from the survey were to protect or preserve:

- Scenic views
- Undeveloped large open fields and pastures
- Undeveloped ridgelines
- Undeveloped large tracts of forested lands
- Historic trails and paths
- Town character but encouraging growth
- Access to trails for recreation – hiking, snow shoeing or cross-country skiing
- Access to ATV and snow mobile trails
- Access to horse trails
- Access to mountain bike trails

View looking north along Route 106 of the open field just before entering Felchville.

Private access to mountain bike and snow mobile trails behind the Reading Greenhouse.

Road Network

Because of Reading's small population and limited financial resources, its transportation facilities consist exclusively of its road system. There are more than eight miles of private roads in Town, and 64 miles of public roads. The Town maintains 39.34 miles of Class 2 and 3 Town Highways.

During Tropical Storm Irene, the Town of Reading had two bridges and 15 roads that were damaged or destroyed by the flooding. The Town estimated costs and expenses at $1.95 million. During this impact, Reading had several road closures and Weld Cemetery Road, while mostly a trail, was opened for access to remote areas. Parts of Niagara Street within the village remain closed and have now been grassed over.

View looking south along Niagara Street before the impacts of Tropical Storm Irene. This section of road today does not connect to Route 106.

Mileage of public roads is distributed as follows:

Table 3.1 – Roadway Mileage by Classification

Road Mileage

Highway Classification	Miles
State Highways	7.481
Class 2 Town Highway	9.100
Class 3 Town Highway	30.240
Class 4 Town Highway	17.360
Trail (est. under Title 19)	0.250
Private Roads	8.139
Total Town Maintained	39.340
Total Public Roads	64.431
Total (Includes Right-of-Ways)	72.570

Sources: VTrans, VCGI

North Branch Black River near the former section of Niagara Street, still a popular water feature.

Access road to Reading Farms. Example of narrow, tree canopied roadway and vegetation growth along the edges.

The Town should discourage the widening and straightening of state highways and Town roads, especially Tyson Road in Reading. Most of the roads in town are gravel and must be maintained frequently. In the Town Plan survey, several respondents wrote in that maintenance of gravel roads was an important issue. Related issues include concern for water quality (i.e. the surface waters that are located next to many gravel and paved roads), and an interest in prioritizing maintenance of roads according to use.

The existing roads are generally adequate to support anticipated future needs. Roadway needs include routine maintenance of the existing road network, paving Tyson Road, adequate sizing of culverts and bridges per Town standards, and other improvements discussed in the next sections of this Chapter.

View of existing beaver pond along Route 106 and Whitmore Road. The town should coordinate with state agencies to preserve and maintain wildlife habitat as well as manage stormwater and culverts to minimize flooding due to beaver activity.

Some of the most desirable improvements to rural roads are:

- Allowing vegetation growth next to roadway edges, such as ferns, grasses and small undergrowth
- Encourage complete shading of rural roads by large native deciduous trees that are salt tolerant and are setback enough for maintenance
- Widths are controlled to further encourage traffic calming and safer passage for our tourists, bicyclists, walkers, visitors, horseback riders and residents
- Creating a sense of pride and neighbor ownership with well-maintained roadways and a reduction of litter and debris

- Better coordination with Town resources to smooth out ruts and washboards and helping to reduce storm water erosion and stream sediments
- Keep records of culvert maintenance
- Limiting or consolidating when possible, access points to parcels as suggested in Reading's Forest Fragmentation Study, May 2008

Looking north, just South of Felchville on Route 106.

The Better Backroads program, a partnership between the Water Quality Division at the Vermont Agency of Natural Resources, the Vermont Local Roads Program, and the Resource Conservation and Development Councils, provides small grants and technical assistance for towns regarding maintenance of gravel roads as it relates to improving water quality. The Town should consider developing an inventory of erosion sites on gravel roads and implementing ways to improve road maintenance practices, to reduce erosion and stream sedimentation.

Looking north, center of Felchville along Route 106.

According to Table 3.1, the Town has more than 17 miles of Class 4 Town Highways. These are roads that belong to the Town, but are maintained infrequently. Class 4 roads are valuable recreational resources for hikers, horseback riders, mountain bikers, snowmobilers, and cross-country skiers. There are also 0.25 miles of Legal Trails in Reading. Legal Trails are public rights-of-way established under Title 19 V.S.A., but are not considered highways. Trails are also a valuable recreational resource. The Town is not responsible for the maintenance of trails. A Class 4 Town Highway can be reclassified as a Legal Trail to retain the public right-of-way but eliminate the burden on the Town to provide maintenance.

View of the Keepers Restaurant at Route 106 and Baileys Mill Road is an example of access management and safety mitigation for patrons entering facility.

There are a few existing networks of recreational trails in Reading maintained by:

- VAST – Vermont Association of Snow Travelers
- STAB – Sports Trails of the Ascutney Basin, network of bike trails
- GMHA – Green Mountain Horse Association
- RATS – Reading All-Terrain Sportsmen

Access Management

Access management is the design and spacing of driveways and street connections ("curb cuts") to public roadways. Towns can use it to preserve safety, reduce congestion, and promote desirable land use patterns.

The State *Access Management Program Guidelines* (VTrans, 2005) designates most of Route 106 in Reading as Category Four. Category Four highways are generally for "moderate travel speeds and moderate traffic volumes over medium and short travel distances providing for inter-city, intra-city, and intra community travel needs." The section of Route 106 as it passes through Felchville is designated as Category Six (Urban).

According to the Guidelines, Category Six highways "have the capacity for moderate to low travel speeds and moderate to high traffic volumes over medium to short travel distances." The VTrans design standards for these roads state that "the design of all Category Six highways should be capable of achieving a posted speed of 25-40 MPH and there is little or no possibility of achieving higher speeds."

Road access permits may be denied where a property has other reasonable access. Accesses that would allow left turns onto the state highway should only be permitted if the applicant can establish that the left turn would not cause unreasonable congestion or safety problems. Because Reading does not currently experience congestion, additional accesses are not likely to cause many problems in Felchville. Whenever possible, new development should consider sharing accesses with other properties with nearby access points to avoid the need for additional culverts, removing stone walls and clearing vegetated and forested openings along a roadway corridor.

Because of the numerous access issues in the village center of Felchville, speeds within this corridor should be reduced to 25 miles per hour instead of the current 35 miles per hour. Most village centers have this reduction; in particular Woodstock and Bridgewater have reduced speeds along a state highway. Of special consideration is the approach northbound that is blinded going uphill from the Library toward the General Store. A slower approach would allow greater reaction times for pedestrians, bicyclists and motor vehicles entering off Tyson Road. Attempts have been made to VTrans in the past to lower these speeds but have been unsuccessful.

Village Transportation Issues

Within the village of Felchville, Route 106 narrows substantially and speed limits are reduced gradually from 50 to 40 then 35 miles per hour. The narrower road serves to remind motorists to slow down, but creates dangerous conditions for bicyclists and pedestrians as they share the road with cars and trucks. The village center lacks continuous sidewalks that separate pedestrians from the vehicular traffic by either a raised curb or visual separation of materials from asphalt to concrete. The Town may wish to look into "traffic calming" devices to further slow down traffic as it goes through the village. The Vermont Agency of Transportation is currently updating the 2003 "Traffic Calming Study and Approval Process for State Highways". This publication offers

standards and several examples of traffic calming devices that have proved effective in village centers throughout the state.

Some examples of traffic calming devices are as follows:

- Curb extensions or bulb-outs that make the travel-way narrower. These are effective for slowing traffic at crosswalk locations as well.
- Raised and textured crosswalks. While this is effective, design needs to consider snow plowing and regular road maintenance.
- Median islands
- Roundabouts. Most roundabout designs need a minimum 100 foot diameter space for optimum approach, turning and maneuvering.

Speeding on Route 106 through Felchville is a concern for many residents. At the Selectboard's request, the State Traffic Committee recently reduced the 50 mph speed at the northern end of the village to 40 mph. Speeds are effectively patrolled under contract with the Windsor County Sherriff Department.

Several survey respondents noted that parking at the corner of Route 106 and the Tyson Road creates a dangerous situation. Any vehicle making a turn onto Route 106 has poor visibility if there are cars parked in front of the General Store. Both northbound and southbound traffic on Route 106 do not see these vehicles. Additional conflicts are the pedestrians, bicyclists and skateboarders who would be crossing Tyson Road from the Post Office to the General Store. One possible solution to the poor visibility is to remove the entire pavement in front of the General Store and landscape it with low growing, salt-tolerant and hardy plantings. The store front is entirely within the current highway right-of-way which begins at the entry steps.

Existing parking within Felchville is generally located on-site to the side or rear of buildings that face VT Route 106, with some on-street parking along the shoulder of the roadways, and parking behind Town Hall. At this time, there is not a need for additional public parking spaces. If additional commercial activities move into Felchville, on-street parking may not be able to support the demand. If new areas for parking do become necessary, they should be located behind buildings or in off-site locations wherever possible so as to maintain the historic character of the village. Since the fire station has moved, the space behind the Town Hall does provide overflow parking that may accommodate a small progression of growth within the village center.

In the past, junk cars have always been a priority issue concerning transportation. While this is also a land use issue, the visual impact of junk cars is especially significant in village centers and on highly traveled roads. While this may be a continuing issue with residents, the Town should encourage stricter guidelines to further reduce and limit this visual eye sore and negative impact to the village character.

Public Transportation and Ridesharing

Connecticut River Transit (CRT) is the nonprofit transportation provider for the southern Windsor County Region. CRT buses connect with Advance Transit buses to provide bus service from Park and Ride lots in Ascutney and Hartland to employment centers in the Upper Valley. This bus system also provides seasonal service from Springfield, Chester and Cavendish to Ludlow during the winter months. CRT also provides year-round bus service from Bellows Falls and Springfield to Ludlow, with connections to Rutland via Marble Valley Regional Transit. In addition, "on-demand" services are available throughout CRT's service area, including in Reading. There are currently no bus stops in Reading. The Town should determine the extent of the need for public transportation in Reading, and work with Connecticut River Transit to determine if an additional service would be warranted.

Volunteers in Action out of Windsor provide rides to medical appointments and other necessary destinations for seniors and otherwise disabled individuals who cannot drive and for whom the bus system is not flexible enough. This organization also transports meals from Stoughton House to the Reading Town Hall where volunteers take them to individual households in town.

Those who commute to work and are seeking alternatives to the single-occupancy vehicle, may want to consider starting a ridesharing program. The Go Vermont program offers carpool matching and guaranteed ride home services in order to encourage commuter ridesharing (http://www.connectingcommuters.org/carpool-vanpool). Common job locations for Reading residents include: Woodstock, Lebanon NH, Windsor, Ludlow, Springfield, Hartford, and Hanover NH.

Bicycle and Pedestrian Facilities

The scenic quality of Reading's roads makes them popular with bicyclists. Unfortunately, the same qualities that make roads attractive to cyclists (narrow, winding roadways with scenic views) can also lead to conflicts between bikes and automobiles. Although a separate path might be difficult to construct due to the flood plain and/or steep slopes, the Town could increase mutual awareness and understanding between cyclists and drivers by placing "share the road" signs along Route 106 and the Tyson Road and ensuring that repainting and repaving of the road include wide shoulders for bicyclists. (Consider increasing shoulder width by either reducing travel lane width or expanding paved shoulder in places instead of a path. Also consider that a wider road encourages faster travel speeds.)

Reading's villages historically grew up along narrow roadways which were not designed to carry car and truck traffic, especially at today's higher speeds compared to horse-powered buggies and normal walking speed. The lack of sidewalks in the village areas, particularly around the school, concerns many people in Reading. Several years ago a design was developed for sidewalks in Felchville. At the time, however, residents of the Town voted not to pursue funding to construct a sidewalk. Before moving forward on such a project again, public support for the project should be measured. As traffic through the town increases over the years, the need for sidewalks may become more apparent and receive greater support from the community.

Rail, Air and Bus Transportation

There are no rail facilities in Reading. There is an inactive private airstrip in Town. The only other airport in southern Windsor County is Hartness State Airport in Springfield. For commercial air travel, people in Reading use airports in Lebanon and Manchester, NH; Boston, MA; Hartford, CT; Rutland and Burlington, VT. Both Rutland and Lebanon airports offer daily commuter plane connections to Boston, Albany and New York City and nearby destinations along the coast in Massachusetts.

Passenger rail service is available to Reading residents through Amtrak's Vermonter train, with nearby stations in Windsor, White River Junction and Bellows Falls. The train runs between Washington, D.C. and St. Albans, stopping in Windsor twice daily, once northbound and once southbound. Rail service on the "Ethan Allen Express" is also available from Rutland to New York City and points in between. Other rail connections nearby are in Claremont, NH.

In addition to passenger rail service, there is inter-city bus service to major northeastern cities available regionally through Greyhound. The nearest Greyhound bus stops are in White River Junction and Bellows Falls. Dartmouth Coach also provides connections to Boston and New York City, with a variety of schedules and offers WiFi and other amenities enroute.

Reading does not currently have a significant need for local rail, air, or inter-city bus service and does not anticipate a need in the near future. The Town should continue to support regional efforts to maintain the present level of services.

Goals and Action Steps (Goals are numbered, Action Steps are indicated by an arrow)

1. Preserve the character of Reading's rural roads.
2. Preserve the rural character of the Town, including historic features, scenic views and historic structures, when considering transportation improvements.
   - Work with VTrans to ensure that State-funded transportation projects do not adversely affect Reading's character or frustrate the goals and objectives of this Plan.
   - Investigate the possibility of using available state and federal programs to protect outstanding scenic roads in Reading, as identified in Chapter 2.
3. Maintain and improve the quality of surface waters through better road maintenance practices.
   - Develop an inventory of erosion sites on gravel roads and implement ways to mitigate erosion problems at these sites.
   - Improve road maintenance practices to protect surface waters from road runoff and sedimentation.
   - Seek out state and federal programs that address the water quality issues of road runoff from paved and unpaved roads into nearby waterways.
4. Maintain Town ownership of Class 4 roads and trails for recreational use.

5. Ensure that there is adequate parking in village centers to serve commercial establishments and to maintain safe travel on state and local roads.
   - Investigate ways to improve visibility at the Tyson Road, Route 106 intersection.
6. Ensure that public transportation services are available to the elderly and other residents who do not have access to cars.
   - Investigate the need for public transportation services in Reading.
7. Improve access to ride share programs for commuters.
   - Implement a ride-sharing network through the Town's web site
   - The Town should determine the extent of the need for public transportation in Reading, and work with Connecticut River Transit to determine if an additional service would be warranted.
8. Create or maintain safe routes for bicycles and pedestrians, especially in village centers.
   - Monitor the need and local support for the installation of sidewalks to the school and other destinations in Felchville.
   - Work with the Regional Planning Commission to use the Vermont Agency of Transportation pavement management program to install bicycle lanes along Vermont Route 106.
   - Increase mutual awareness and understanding between cyclists and drivers through signage and traffic calming measures, if necessary.
   - Study the benefits and drawbacks of designating certain roads as bikeways, and/or creating separate travel lanes for bicycles on certain roads or portions of road.
9. Reduce traffic speeds through village centers.
   - Maintain designation of Felchville as a "Village Center" through the Vermont Downtown Program in order to be eligible to reduce speed limits to 25 mph.

Policies

1. Shared access points, including driveways, shall be encouraged on Route 106 outside village centers.
2. Road development, maintenance and improvement projects shall preserve the natural and cultural resources of the Town, such as stone walls, tree canopies, streams, and wetlands.
3. The Town shall encourage growth to take place along roadways that are capable of supporting the growth in their present condition.
4. The Town shall work with the Regional Planning Commission to maintain a viable regional transportation plan.
5. The widening or straightening of state highways within the Town shall be discouraged.

6. The Town shall incorporate road maintenance and improvement guidelines described in the Better Back Roads Program and the current VTRANS Bicycle and Pedestrian Design Handbook to the extent practicable.

Chapter 4

UTILITIES AND FACILITIES

Reading's small size and rural nature make it difficult for town taxpayers to justify funding many public utilities, facilities and services that might be found in larger towns. Unless otherwise noted in this Chapter, the existing municipal facilities and services are adequate to meet anticipated future needs.

Most Reading residents would like to maintain the rural character of the Town and its villages. Many also support higher density residential and commercial development in the village centers. In order to direct growth to village center areas, the Town needs to look into innovative ways to approach sewage disposal and water supplies for densely developed areas. While larger lots allow for on-site septic systems and private wells, development that is spread out (rather than compact, as in village centers) has a greater impact on public roads and emergency services, and could negatively impact wildlife habitat.

Robinson Hall

Like many towns in the state, Reading faces a fluctuating school population. In the Fall of 2012, after ten years of a declining number of students, the enrollment increased by eight students over the previous year. The addition of pre-Kindergarten for three and four year olds in 2012 has also added students to the total school population. The Reading Elementary School is located in the village center (Felchville), so its operations affect the life of the village center, and its grounds provide recreational and meeting space for the wider community. If the school population continues to fluctuate, Reading residents will continue to discuss the school's future and role in the community.

Water and Sewer

All water supply and sewage disposal is provided through on-site septic systems and private wells. While these methods work well in the more rural parts of Town, small village lots are often too small to achieve the desired distances between private septic systems and wells. Many houses in Felchville currently share water sources or septic fields.

A public water supply and/or sewage treatment system could make it possible for growth to occur in village centers rather than in the more rural areas that surround the village centers. According to the results of the 2011 Town Plan Survey, 69.1% of respondents felt that it is important to develop villages in a way that preserves Town character while promoting growth, and 18.1% of respondents felt that this is a somewhat important issue. Over 70% of respondents felt that productive agricultural lands and critical wildlife habitat are important resources, and over 60% of respondents saw scenic views, wetland habitat, undeveloped open fields and pastures, undeveloped ridgelines, and large tracts of forest land as important. If the Town wishes to promote growth in village centers, particularly Felchville, it should review the cost and feasibility of providing water and/or sewer treatment to village properties.

The Town may also wish to consider looking at alternative approaches to disposing of sewage and/or providing safe drinking water in village centers, such as "decentralized systems" which include a combination of individual and shared septic systems.

Education

In accordance with State Planning Goals, a primary educational objective of the Town is to provide reasonable access to educational and vocational training opportunities to ensure the full realization of the abilities of all residents.

Elementary Education

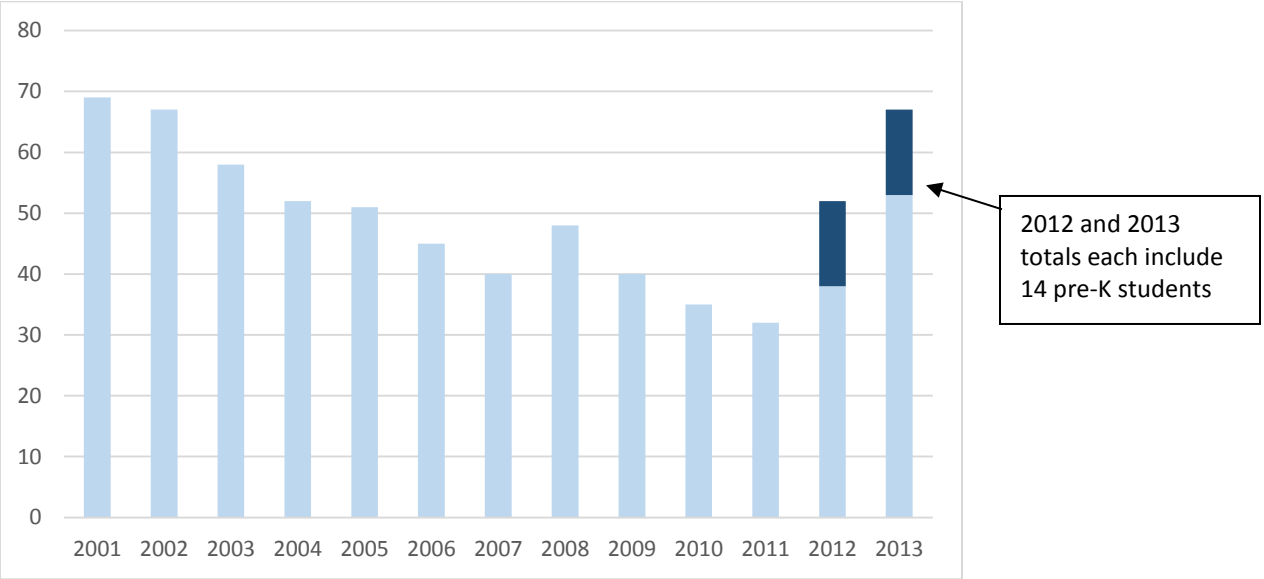
Reading's only educational facility is the Reading Elementary School. Enrollment has decreased from the high of 75 students in 1999 to a low of 32 in 2011-2012, reflecting a trend that is affecting many small towns in Vermont. However, school enrollment increased to 52 students in 2012-13 (14 in Pre-K which began in the fall and 38 in K-6th). When school populations decrease, towns are faced with difficult decisions about educating their children: finding more students to attend the school in order to help spread out the costs or possibly closing the school. The task of finding more students can be addressed either by enrolling students from neighboring towns, or encouraging families with school-aged children to move into Town. The majority (78.7%) of respondents to the Town Plan Survey selected the following response when asked "How do you feel about the Reading Elementary School?": "The school is important, but if enrollment continues to decline and taxes continue to rise, the Town should consider consolidation of all grade levels with nearby towns." The optional written comments to the Survey presented a wide range of opinions about the school. Some people were concerned that students in a small school were missing educational, social, technological, and extracurricular opportunities. Others felt the school was an essential part of the Town and should stay open regardless of enrollment and cost. And others felt the Town should close the school and tuition students to a neighboring town. The written comments from the Survey can be reviewed at the Town Office.

The land on which the Reading Elementary School was built was given to the Town in 1936, and the original school was built shortly thereafter. An addition was completed in 1994, bringing the

total capacity of the school to 80 students. There is no foreseeable need for infrastructure improvements to the building in the near future.

Several teachers, administrators and school board members from the RES participated in an Education For Sustainability (EFS) Institute the summer of 2012 with the goal of making the school a model of sustainability similar to the Lawrence Barnes Sustainability Academy[10] in Burlington. The RES team also hopes to redefine the school's mission statement with assistance from parents, students, and community members in order to begin the process of educating the larger community about sustainability.

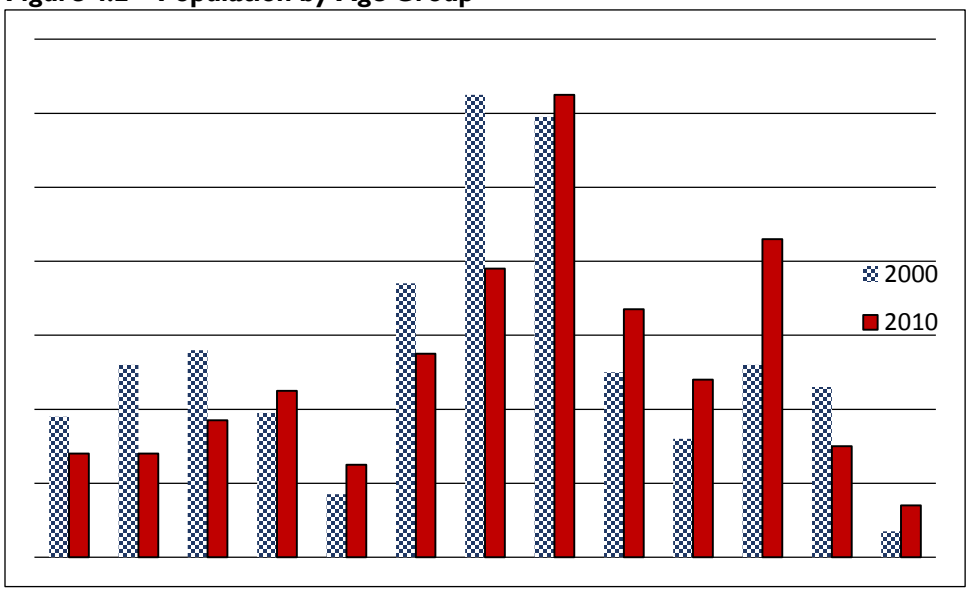
Figure 4.1 – Reading School Enrollment – 2001 to 2013*



***Note**: 2012 enrollment figures include 14 Pre-K students. Enrollment in K-6th grade level was 38 students. 2013 enrollment figures include 14 Pre-K students and 53 students in grades K-6.

[10] The Sustainability Academy at Lawrence Barnes in Burlington is a collaborative partnership of educators, families and the community that is a model for using sustainability as a lens for place-based education and service learning for pre-K through grade 5 (http://sa.bsdvt.org/).

Figure 4.2 – Population by Age Group



High School and Continuing Education

There were 41 Reading students enrolled in grades 7-12 at the Wooodstock Junior & Senior High School during the 2012-13 school year. These students attend school in Woodstock since Reading is a member of the Windsor Central Supervisory Union. The Hartford Technical Center offers vocational training for high school students who live in Reading. The Howard Dean Educational Center in Springfield offers college and continuing education classes through the Community College of Vermont, the University of Vermont, and other partners. The Howard Dean Center also hosts a Vermont Interactive Television site for statewide meetings and educational programs.

Child Care Facilities

Childcare is an increasingly important factor in an economy where households are often supported by two incomes. The need for childcare during working hours is particularly important to single parent households. According to Census 2010, there were 35 single parent households with children under 18. According to the 2010 Census, slightly more than 4% of the Town's population is under 5 years of age, compared to 5% in 2000. The Reading Elementary School now offers programs for pre-K aged children, taking care of a portion of the child care needs in town.

Most Town Plan Survey respondents answered that childcare options did not apply to them. 11.8% of respondents said that childcare options in Reading are adequate, while 11.8% said that childcare options are not adequate.

Public Buildings

Town Hall

Also called Robinson Hall, this building houses the Town Clerk's office, the Listers' Office, the Post Office, a handicapped accessible bathroom, and a kitchen and dining room on the first floor for public functions. On the second floor is a meeting room, a stage, and men's and women's bathrooms. The historic painted mural that serves as a backdrop for the stage was recently restored. The Robinson Trust owns Robinson Hall. The Town may use the building for free as long as it is used as the Town offices, otherwise ownership of the building returns to the Robinson Trust. The Town pays for upkeep of the building. The Town should investigate ways to make the building more energy efficient. It is important that the Town Hall continue to be located in the village center.

Gilbert A. Davis Library

The Gilbert A. Davis library building was built in 1899, paid for by local attorney, Gilbert Davis. The children's room was added to the library in the 1986, and a wheelchair lift was added in 2007. The library is owned by the Town and has a collection of 6,500 books. The library also offers Wi-Fi access and hosts book club meetings, activities for children and adults, and special events. The library is available free of charge for use by local groups.

Town Garage

This building is located on five acres of land in South Reading. It has six vehicle bays. The Town operates three dump trucks, snowplows, sanders, a grader, a loader, and other equipment. The Town budgets funds for equipment repair and replacement each year. The Town's sand and salt supply is stored at the Town Garage and the salt supply is covered.

Old Stone School House, South Reading

Cemeteries

The Town currently administers and maintains six cemeteries: Amsden, Bailey's Mills, Spear, South Reading, Sawyer, and Swain. Plots are available in the New Amsden Cemetery.

Stone Schoolhouse

The Stone Schoolhouse is located in South Reading. The local Reading-West Windsor Food Shelf operates out of the building.

Historic Monuments

The Indian Stones monument is owned by the Town and commemorates the abduction of Susanna Johnson and her family by the Abenaki Indians during the French and Indian War and the birth of Susanne's daughter, Captive, on the long trek across Vermont to Lake Champlain. Captive was the great grandmother of Fredrick Billings, Vermont's pioneer of environmental conservation. His home in Woodstock is Vermont's first, and so far only, national park.

Reading should consider establishing a 50 foot wide wooded buffer adjacent to the North Branch of the Black River, as it flows past the Indian Stones site, to provide stream bank and ecological protection.

Town Highways

Maintenance and improvement of Town roads, bridges, culverts and drainage ditches is accomplished through state grants and local taxes. In 2011, over 15 miles of roads, 2 bridges, and many culverts were damaged or completely destroyed during Tropical Storm Irene. Generally the Town applies for state grants to cover most of the costs of major road and bridge projects. The Town adopted the 2013 town highway and bridge standards, which is a requirement for reduced local match under a few State funding programs. Regular maintenance of Class 2 and Class 3 roads is a large part of the Town budget.

Emergency Services

Fire & Ambulance Service

Reading fire and rescue services operate out of the Emergency Services building. It is located on 5 acres of land on Route 106 near the intersection of Route 44, adjacent to the Amsden Farm property. The Reading Fire Department has three trucks, and is a member of Connecticut Valley Mutual Aid. Reading Rescue has an ambulance that was converted to a Fast Squad vehicle. Reading is also served by the Golden Cross ambulance service from Claremont.

Police

The Town employs the Windsor County Sheriff's office for traffic enforcement and monitoring speeding, and the Vermont State Polices provide all other police services. In the past, a constable was elected for local law enforcement. Several respondents to the Town Plan Survey wrote in a need for more police protection.

Hospitals

Reading is served by two hospitals within the Southern Windsor County Region: Mt. Ascutney Hospital in Windsor and the Springfield Hospital. Residents are also served by the Dartmouth-Hitchcock Medical Center in Lebanon, NH, the Ottauquechee Health Center in Woodstock, and Valley Regional Hospital in Claremont.

Telecommunications Towers and Electrical Transmission Lines

The use of cell phones and the federal Telecommunications Act of 1996 has led to the increase in the number of telecommunication towers and facilities. The purpose of the Act was to make telecommunication possible from anywhere in the United States to anywhere in the world. The siting of electrical facilities, electrical transmission lines and telecommunications towers is a controversial subject that involves health, safety, and aesthetic issues. The placing of towers on mountains and ridgelines can detract from scenic resources. Electromagnetic fields (EMF) emitted by communications towers and high-voltage electrical transmission lines are suspected of contributing to human health problems, including some types of cancers[11]. Often the clearing and grading needed to create access to telecommunication towers can be more damaging to natural and scenic resources than the towers themselves.

The majority of survey respondents were supportive of the installation of one or more telecommunication towers in Reading. Almost half (48.5%) of the people that responded to this question said they were in support of cell towers if they are reasonably disguised to blend into the environment or if they are mounted on existing structures. Over a third (37.6%) of respondents were in direct support of cell towers, and 26.7% were supportive as long as the towers are built within ridgeline protection regulations. Tropical Storm Irene confirmed the need for more telecommunication facilities in certain areas of Reading in order to provide communications during major disasters. A study is currently underway to determine if antennae installed on power poles could provide adequate service along the Route 106 corridor.

Specific language regarding siting of telecommunications facilities is included in the Goals and Policies section at the end of this chapter.

[11] Levitt, B. Blake and Henry Lai. "Biological effects from exposure to electromagnetic radiation emitted by cell tower base stations and other antenna arrays," in Environmental Reviews 18: 369-395 (2010). Published by NRC Research Press.

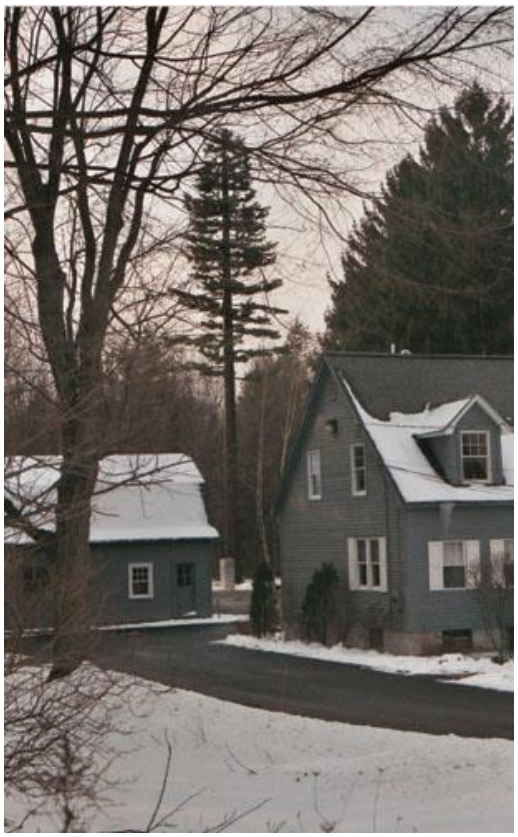


Figure 4.3 – Telecommunication towers that are designed to look like pine trees that would be found in New England could be acceptable examples of "stealth design" that could fit into the Reading landscape. It is important to note that the "monopine" towers in these two photos blend in with the surrounding treeline and do not stick up above the tree line.

Solid Waste Disposal

Residents may take their garbage and recyclables to the Weathersfield transfer station, or may hire a private vendor to pick up their garbage and recyclables. Reading is a member of the Southern Windsor/Windham Counties Solid Waste Management District, which provides solid waste services and planning for member towns. The District website (www.vtsolidwastedistrict.org) is a resource for information on recycling, household hazardous waste collections, the new Universal Recycling Law (Act 148), and other solid waste services. The Town of Reading should continue these arrangements and should take an active role in local and regional efforts to reduce the solid waste stream and increase recycling.

Recreational Facilities

Reading's only municipal recreation facility is the Claude Bartley Memorial Field. It is located in Felchville and consists of a 5-acre baseball field. There is also a walking trail behind the elementary school, and there is a committee that is looking at using the land behind the

elementary school for additional community recreational purposes. The gymnasium at the Reading Elementary School is available for community use for indoor recreational activities including basketball and yoga. Many other recreational opportunities in the form of trails are available to the public in Reading on both private and state-owned lands. See the Natural and Cultural Resources chapter for more discussion on recreational trails.

Public Lands

The State of Vermont owns 6,676 acres, or nearly 25% of the land in Reading. Much of this land is either wildlife management area (around Knapp Brook Pond and the Arthur Davis Wildlife Management Area) or is attached to the Calvin Coolidge State Forest. The Town Forest is located north of Knapp Pond. The Town has timber rights to the "town forest" but does not own the land itself. The state owns the land around 20-Foot Hole (i.e. Twenty Foot Hole State Forest), a popular swimming hole on the North Branch of the Black River. There are many trails in these areas, offering recreational opportunities for hiking, skiing, horseback riding, snowmobiling, etc. State lands should continue to be managed for recreational use as well as for forestry and wildlife habitat.

See the Implementation Matrix that lists priority needs for municipal facilities and services, including estimates of costs and methods of financing.

Goals and Action Steps (Goals are numbered, Action Steps are indicated by an arrow)

1. Explore options for public water and sewer in Felchville in order to allow for higher density development while maintaining public health.
   - Allow decentralized septic systems in village centers where possible to enable high-density housing and commercial development.
2. Continue to monitor the cost per student /fluctuating enrollment at Reading Elementary School.
   - The RES Board should work to reduce the educational cost per student and bring it into line with other schools in the supervisory union.
   - If enrollments decline again to 2011/2012 levels, the RES Board should develop a cost-benefit analysis for alternatives to maintaining the elementary school as it currently operates.
   - Investigate ways to promote the Town as a desirable place to live and raise a family as a means to increase the student population and spread out the costs.
   - Review the Zoning Ordinance to ensure that no regulations inhibit affordable housing throughout the Town.
3. Maintain all Town-owned and leased buildings and recreational facilities on a regular schedule; institute an energy conservation plan to ensure that repairs will increase efficiency and savings wherever possible.
   - Develop a plan to upgrade the Library facilities to maintain the quality of the collection

and accommodate new books and publications.

- Conduct an energy audit on the Robinson Memorial Hall.
- Seek funding to replace the damaged exterior siding on the building.

4. Maintain the highway system in a safe condition and according to the Vermont Local Road and Bridge Standards.
5. Maintain Town-owned and administered cemeteries and provide for future acquisition of abutting lands as the need develops.
6. Develop a comprehensive capital improvements plan to guide the planning for public buildings, equipment, and roads. The plan should include future needs, priorities, costs, and financing methods.
7. Provide residents with the benefits of an integrated and modern communications network, while minimizing the economic, environmental and cultural costs of its development.

Policies

1. The Town shall support the retention and ongoing repair and maintenance of historic buildings and structures to the extent practicable.
2. The Town offices and Post Office shall continue to be located in the village of Felchville.
3. Town-owned equipment shall be maintained and replaced as necessary to ensure that they are in safe, efficient and operable condition.
4. The Town's preference is for co-locating new or expanded wireless communications services on existing facilities, or siting on existing structures and employing "stealth" design. Owners or operators of existing tower space shall be encouraged to facilitate the sharing of that space unless sharing or co-location is prohibited due to frequency interference, adverse aesthetic impacts, or a demonstrated risk to public health.
5. When co-location is not possible, the Town prefers that telecommunication companies construct several shorter towers rather than one large one when designing cell coverage for Reading. The siting and design of all new communications towers and other facilities (including support, maintenance, and access facilities) shall be done such that impacts on wildlife habitat and travel corridors, wetlands, rivers and streams, and other natural, scenic and historic resources of the Town are minimized or avoided. The location of wireless communications facilities on ridgelines is discouraged; however, where such a site is considered to be necessary under the requirements of the Telecommunications Act, "stealth" design must be incorporated in the siting, construction and maintenance of the facility. All towers must be sited so that they blend in with the surrounding landscape and treeline, using stealth design as appropriate. Owners of telecommunication towers must maintain all stealth design features and must decommission the towers and remove them from the site if they become obsolete due to new technology.

6. Applicants for communications facilities at new or existing sites shall demonstrate to the Town that public exposure to electro-magnetic radiation will not exceed the applicable FCC standards.

Chapter 5

ENERGY

Vermont has a national reputation for its care of the environment; concern for efficient energy use by businesses, individuals, and vehicles; and efforts to recycle and reuse wherever possible. Increasing energy costs for homes and transportation contribute to these attitudes, but trends like "eating locally" and "reducing carbon footprints" show that people are concerned about quality of life and health of the environment as well. Reading residents and landowners echoed these sentiments in their answers to several questions on the Town Plan Survey. About 75% of the respondents have made improvements to their home or business to reduce energy use. Additionally, zoning bylaws, subdivision regulations, the Vermont Residential Building Energy Standard, and the Act 250 process are regulatory tools that the Town can use to promote energy-efficient development and construction at the local level.

Heating Fuel

Vermonters and local residents use a variety of fuels to meet energy needs, but by far most people use petroleum products. According to Census 2000 data, 62.5% of Reading residents used fuel oil and kerosene for heating, 22.1% used wood, and 14% used LP gas. At that time there were four households that used electricity. The 2010 Census did not generate comparable data so the source of information for the following table is the 2006-2010 American Community Survey[1]. The data suggest a significant switch from using fuel oil to LP gas since the 2000 Census. In addition, wood remains an important locally-sourced heating fuel.

Table 5.1 – Space Heating Fuel Types (2006-2010 American Community Survey)[12]

Total:	282
Bottled, tank, or LP gas	68 or 24%
Electricity	0
Fuel oil, kerosene, etc.	152 or 54%
Coal or coke	0
Wood: firewood, pellets, etc.	62 or 22%
Active solar energy systems	0
Other fuel	0
No fuel used	0

22% of Reading households use wood as a source of heat. Some residents cut firewood from their own land or other land in town, while others purchase wood from one of several local suppliers. These businesses harvest logs in the area but not necessarily all from Reading. Firewood is a good example of a local source of alternative energy, one that should be supported by protecting local productive forestland and sustainable forestry practices.

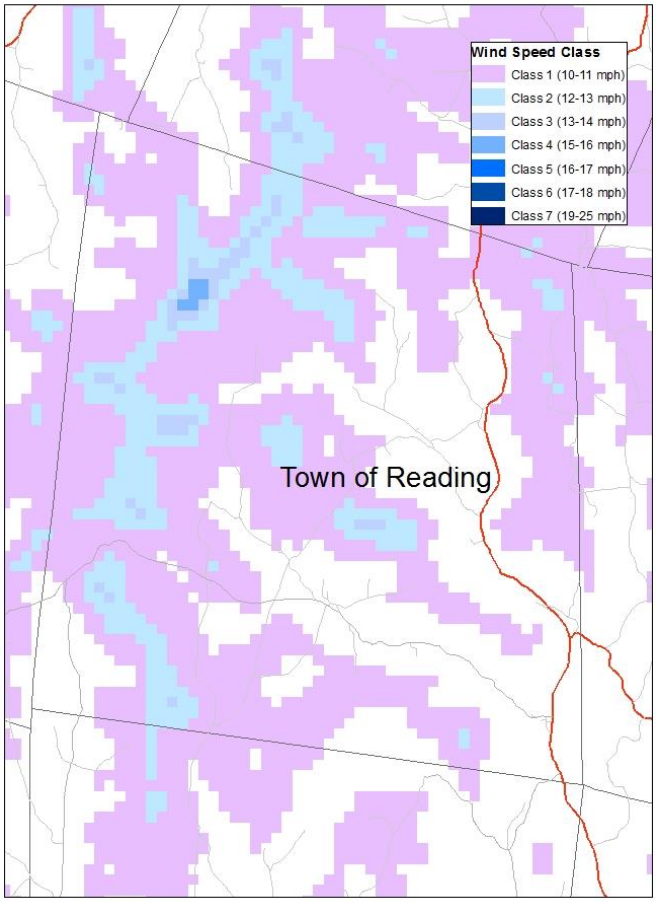
[12] This American Community Survey data has fairly high margins of error, but no other data source is available for the Town of Reading. Since there are no gas pipelines in Reading, data for "utility gas" was combined into the "bottled, tank, or LP gas" category. The data is for occupied housing units and shows the type of fuel used most to heat the house, apartment, or mobile home.

Alternative Energy Resources

Wind, water, and the sun are potential alternate energy sources but building location and design are very important for taking advantage of them.

Solar - Active solar power can heat water for household use, provide heating for buildings, or generate electricity with photovoltaic panels that is either used directly, stored in batteries for later use, or returned to the grid for a credit against future utility bills. Passive solar energy is another resource that many existing homes and all new homes should take advantage of. Houses can use passive solar energy by admitting the sun's light and heat through properly sized and located windows and skylights. Unfortunately, this resource is only available during the sunny part of each day. Many people who answered the Survey supported the idea of using alternate energy sources (wind, water, sun) by individuals or even the Town for public benefit. The biggest drawback at this time to more widespread use of solar technology is the initial cost of the equipment.

Figure 5.1 - Potential for Residential Wind Turbines (30 Meter Towers)



Wind - Wind is another alternative source of electrical energy for homes with favorable site conditions. Typically wind generators are mounted on towers above tree line and newer designs can start to generate power in 5 mph winds (from a general search of online data). However, power output increases quickly with higher wind speeds. Better conditions and newer designs may require shorter towers and smaller turbines, creating less of an impact on scenic views. According to a wind energy map produced for the Vermont Department of Public Service and copied below, there are many areas of Town where residential scale towers could produce useful amounts of electricity. These towers would be less than 30 meters, or 100 feet tall.

The visual and environmental impacts caused by small-scale wind projects (serving several homes) and larger scale wind farms (serving many) include not just the land the towers occupy but also a much greater area. The access roads to construct and maintain large-scale projects can

lead to fragmentation of forests and wildlife habitats, increased soil erosion, and disruption of aquifers. The Vermont Public Service Board passes final approval on wind farms, (electricity generating facilities that are "net-metered" or tied into the grid) with the Town Plan playing a role in the State decision-making process. In addition, the Reading Selectboard and Planning Commission provide a local response on the pros and cons of the project. Nevertheless, new electrical generation and transmission facilities shall be located in areas that reinforce Reading's traditional and planned patterns of growth, that is compact villages surrounded by a rural landscape of working farms and forests.

Water - Historically, Vermont has used moving water to power mills and generate electricity and several streams in town still have remnants of old mill foundations and dams. Manufacturers now offer "micro hydro" equipment that can generate electrical power from small stream flows. However, the lessons of Irene, environmental impacts and obtaining state permits for development in a stream, make this a daunting alternative.

Remains of Bailey's Mills Dam

Energy Conservation and Efficiency

The most available "alternate energy resource" is energy conservation. By installing enough insulation, weather-tight windows and doors, and highly efficient appliances and light fixtures, the owners of new and existing homes can dramatically reduce the amount of conventional or "alternative energy source" fuel they need. As the cost of conventional fuels inevitably rise, investments in energy conservation will prove to be sound ones.

Efficiency Vermont - The Town of Reading should educate residents about the resources available to help them save energy in their homes. The Vermont legislature created a statewide energy efficiency utility called Efficiency Vermont. It is operated by a private, non-profit

organization (Vermont Energy Investment Corporation) under contract to the Vermont Public Service Board. Their mission is to provide technical assistance, rebates, and other financial incentives to help Vermont households and businesses reduce their energy costs with energy-efficient equipment, lighting, and approaches to construction and major renovation. They can provide information on energy audits for both homes and Town buildings. The value of an audit is that is can pinpoint where energy is being lost or wasted and then recommend cost saving improvements. Efficiency Vermont also partners with contractors, suppliers, and retailers of efficient products and services throughout the state. For more information online, go to http://www.efficiencyvermont.com or call 802-860-4095 or 888-921-5990.

Vermont Residential Building Energy Standard - All new homes built in Vermont must meet the Vermont Residential Building Energy Standard, based on the 2009 International Energy Conservation Code. The "Energy Code," was first passed by the Vermont legislature in May 1997 as the minimum standard of energy efficiency and applies to new residential construction, additions, alterations, renovations, and repairs. Enrollees participating in Efficiency Vermont's Residential New Construction services receive Energy Code support and a completed copy of the Energy Code certificate (to be signed by the builder) upon successful completion of program requirements. For more information about this state law, visit the Vermont Department of Public Service website.

Sixty-two Survey respondents out of a total of 108 (57%) replied that they had made improvements to their homes to save energy. While it's not possible to know exactly how many housing units this represents because several people from each building may have answered the Survey, it most likely means that a significant number of people have improved the efficiency of their homes. The most common improvements were adding insulation and weather-stripping, installing better windows, doors, and appliances, and upgrading heating equipment. Another simple change that can save energy and money is replacing incandescent light bulbs with compact fluorescent bulbs or LEDs wherever possible.

Transportation and Energy Use

Vermont has few large towns or cities and its villages are scattered widely. Consequently, most of us travel a good deal each week commuting to work, completing the errands of daily life, and socializing. Often, we travel by ourselves in our personal automobiles but will pay an ever-increasing energy cost to do so. However, 70% of Survey respondents said they do not carpool or use public transportation for non-work activities because it would be too much trouble. Others requested additional information on public transportation or hoped that van service in nearby towns might be extended to Reading.

The Town can reduce transportation demand and its costs by encouraging and facilitating carpooling, investigating expanded area bus service to Reading, avoiding making back roads wider and straighter than necessary, and educating the public on the subject. In an effort to minimize energy costs, the expansion of roads should be limited and public vehicles should be regularly maintained and replaced, as they age, with the most energy efficient option.

Promoting pedestrian and non-motorized traffic through the development of pedestrian walkways, trails, bike paths, the location of goods and services in close proximity to higher density residential areas, and the development of bikeways can also reduce energy consumption.

Energy and Land Use Patterns

When people develop land without regard to existing infrastructure and development, they create conditions for excessive energy use due to long travel distances and unnecessary expansion or extension of roads and electric utilities. Wherever possible, land development should be concentrated in order to reduce the cost of dispersing energy over large geographic areas. The location of community service structures, retail sites, public utilities, day-care centers, state and municipal offices, and other frequently visited sites should be located within walking distance of residential areas. In addition, new roads and other utilities should be located, when feasible, to coincide with existing and future land use patterns as set forth in this document.

Goals and Action Steps (Goals are numbered, Action Steps are indicated by an arrow)

1. Ensure the most efficient use of municipally owned equipment and vehicles, including the use of fuel.

   - Maintain public vehicles and roads, and educate residents about the importance of maintaining their own vehicles.
2. Encourage energy conservation in Town buildings, businesses and residences.

   - Conduct an energy audit to determine specific energy conservation measures that would improve efficiency in Town buildings for heat, hot water, electrical use and lighting. . Evaluate the suggested energy improvements for cost effectiveness.
   - Educate residents about Efficiency Vermont.
   - Provide information to residents on alternate energy resources, methods of reducing energy consumption in the home (such as winterization and upgrading to energy efficient appliances), and the benefits of a home energy audit.
   - Provide residents and local builders with information on the Vermont Residential Building Energy Standard.
   - Investigate if the use of LED streetlights in Felchville would save the Town money.
   - Investigate using solar powered streetlights in Felchville.
3. Encourage new development to take place in areas most easily served by public utilities.

4. Encourage energy conservation in transportation through expanded use of public transit and ride sharing.

   - Research the possibility of locating a Park and Ride in Reading.

   - Investigate ways to simplify carpooling/ridesharing in Reading, including using the Town website to connect riders with drivers.

   - Encourage the development of energy efficient home occupations and local small businesses.

   - Promote bike paths, and pedestrian and horse trails wherever possible.

5. Locally harvested firewood is an important source of energy for Reading residents and homeowners and the Town should support policies that maintain productive forests as a

source for fuel as well as timber.

6. Make efficient use of energy, provide for the development of renewable energy resources, and reduce greenhouse gas emissions.

   - Prepare an Enhanced Energy Plan to more specifically identify the ways that Reading can achieve this goal.
   - Encourage the use of heat pumps and solar technology for new and existing housing.
   - For large solar arrays further study about emerging technology and environmental and aesthetic concerns is encouraged.

Policies

1. The Town shall encourage the use of cost-efficient alternative energy resources, including renewable resources, for new homes, additions/renovation of existing homes, and for commercial and industrial buildings.

2. Where feasible, developers of residential units shall be encouraged to locate new homes in locations that will maximize the benefits from the sun and/or take advantage of existing infrastructure.

3. The Town shall ensure the acquisition of energy efficient municipal equipment and vehicles and the efficient use of this equipment.

4. The Town shall promote energy awareness and education.

5. The location of community service structures, retail sites, public utilities, day care centers, municipal offices, and other frequently visited sites shall be encouraged within walking distance of high-density residential areas or near connection hubs for trails and other linking pathways.

6. The Town will ensure that new construction of electrical transmission or distribution lines and commercial wind towers take into consideration impacts on natural, scenic, and historic resources and shall not adversely impact fragile soils.

7. The Town shall support local and regional initiatives designed to promote ridesharing, carpooling, and public transportation.

9. The use of locally produced energy sources such as wood, wind, and solar, are supported provided that they are supplied and used in ways that protect air quality and are compatible with this Plan's Natural Resource and Land Use policies.

10. When residents buy a new woodstove, the Town encourages them to select a model that uses a catalytic combustor or alternate technology to improve efficiency and to improve air quality.

11. Reading should require that all outdoor wood-fired boilers purchased by and/or used by residents after March 31, 2010 are certified as Phase II and comply with the VT Agency of Natural Resources Environmental Protection Regulations, Chapter 5, Section 5-204.

Chapter 6

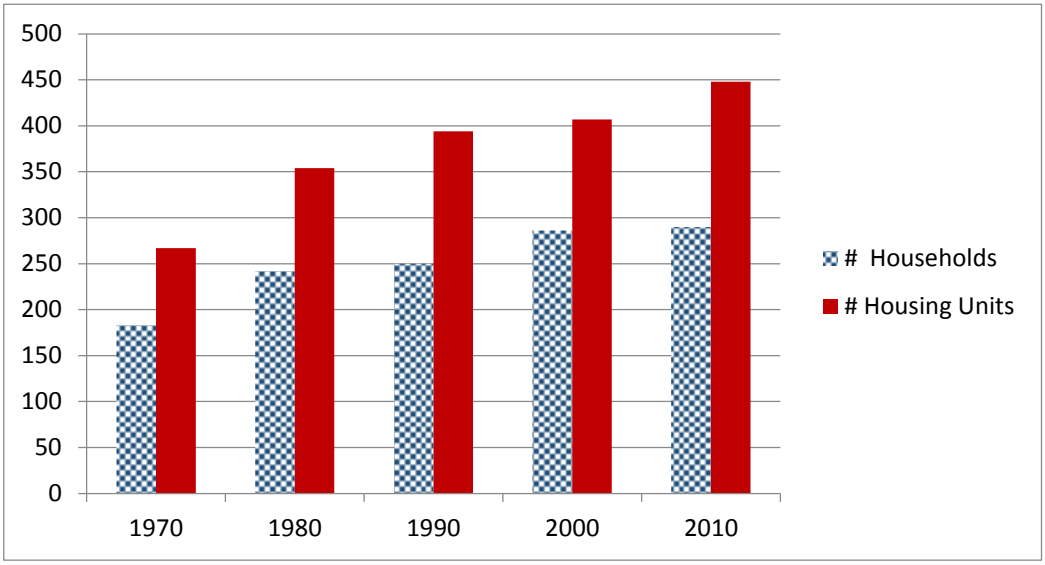
HOUSING

The Town recognizes that housing that is affordable to working Vermonters is important for a successful community. Housing is considered affordable if rent or mortgage, taxes, and insurance costs are no more than 30% of a household's annual income. Affordable housing is one factor that is necessary in attracting and sustaining permanent residents who will send their children to the school, participate in community affairs and make Reading a better place to live. According to responses in the 2011 Town Plan Survey, 62.5% of respondents felt it important to have affordable single family homes in Reading.

Historically, the Town of Reading has not had a large commercial or industrial sector. Most residents either worked on their farms in town or traveled to work in the surrounding communities of Woodstock, Windsor, Springfield and other places in the Upper Valley. A successful economy in this region has led to fairly consistent economic growth. However, housing growth in many towns has remained fairly stagnant, sending housing prices up and vacancy rates down. Those who work in the Hanover/Lebanon area must go farther to look for housing that is affordable, and make longer commutes. The Town may wish to consider pro-active measures to ensure the availability of housing for working families, so that families with school-age children can afford to live in town.

The 2010 Census shows that the number of housing units built in Reading in recent years has continued to increase, while the number of households increased only by four households between 2000 and 2010 (see Figure 1, below). These numbers indicate that more and more housing in town is being purchased as vacation homes. Several smaller properties have been purchased in recent years and the buildings on those properties demolished, reducing the number of lower cost houses in town.

Figure 6.1 – Household and Housing Unit Growth in Reading, VT 1970-2010



In Reading and other towns throughout the region, many seasonal homes were converted to year-round homes as the demand for year-round homes grew between 1990 and 2000. Census data (Table 6.1) shows that the number of seasonal homes dropped by 20% between 1990 and 2000, but rose significantly (by 54.3%) between 2000 and 2010. Currently 31.7% of housing units in Reading are second homes.

Table 6.1 – Household and Housing Unit Data, Reading, VT (US Census Bureau 1990, 2000 and 2010)

	1990	% of 1990 Total	2000	% of 2000 Total	% Change 1990-2000	2010	% of 2010 Total	% Change 2000-2010
Total Households	250	100.0%	286	100.0%	14.4%	290	100.0%	1.4%
Family households (families)	178	71.2%	204	71.3%	14.6%	192	66.2%	-5.9%
Married-couple family	151	60.4%	170	59.4%	12.6%	157	54.1%	-7.7%
Nonfamily households	72	28.8%	82	28.7%	13.9%	98	33.8%	19.5%
Householder living alone	55	22.0%	63	22.0%	14.5%	74	25.5%	17.5%
Householder 65 years and over	29	11.6%	26	9.1%	-10.3%	93	32.1%	257.7%
Total Housing Units	394	100.0%	407	100.0%	3.3%	448	100%	10.1%
Occupied Housing Units	250	63.5%	286	70.3%	14.4%	290	64.7%	1.4%
Owner Occupied	199	50.5%	235	57.7%	18.1%	246	54.9%	4.3%
Renter Occupied	51	12.9%	51	12.5%	0.0%	44	9.8%	-13.7%
Vacant Housing Units	144	36.5%	121	29.7%	-16.0%	158	35.3%	30.6%
Seasonal, recreational or occasional use	115	29.2%	92	22.6%	-20.0%	142	31.7%	54.3%
Median Value ($)	88,900	-	127,900	-	43.9%	273,700	-	114%
Median Contract Rent ($/month)	404	-	396	-	-2.0%	694	-	75.3%

Housing Values

Table 6.2, below shows that the median price of residences sold in Reading has varied substantially, depending on the type of houses sold. Since 1988, an average of eight houses were sold each year in Reading (see Table 6.3). In the last few years, however, the number of houses sold has decreased slightly to between 4 and 7 residences per year.

Table 6.2 - Median Price of Primary Residences Sold

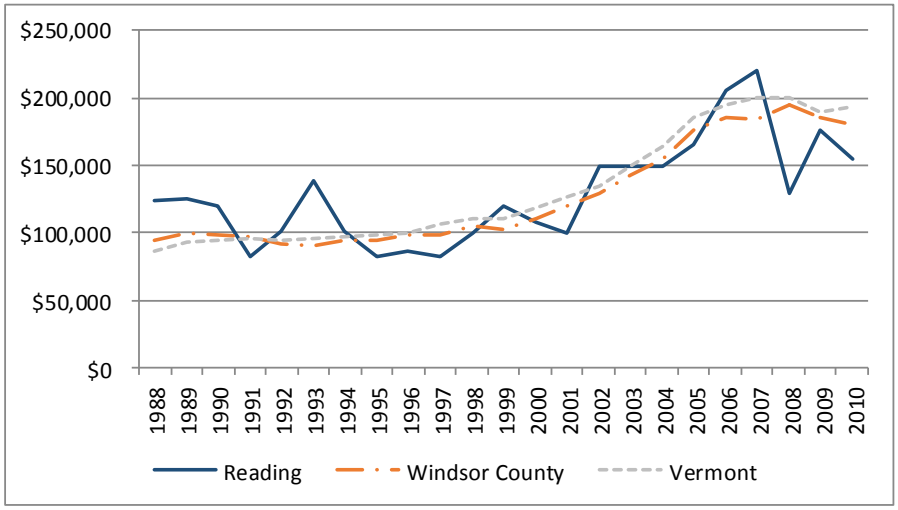
	Reading	Windsor County	Vermont
1988	$124,250	$95,000	$86,000
1989	$125,000	$99,500	$93,500
1990	$120,150	$98,000	$94,500
1991	$82,500	$97,500	$95,700
1992	$101,902	$92,300	$95,000
1993	$138,250	$90,000	$96,000
1994	$101,750	$94,145	$97,000
1995	$82,000	$95,000	$99,000
1996	$86,000	$99,000	$100,000
1997	$82,500	$99,000	$106,000
1998	$100,000	$105,000	$110,000
1999	$119,750	$102,500	$110,000
2000	$108,300	$110,000	$119,000
2001	$100,000	$120,000	$126,900
2002	$149,750	$129,000	$134,925
2003	$149,000	$142,500	$149,900
2004	$149,500	$155,000	$164,500
2005	$165,000	$176,500	$184,900
2006	$205,000	$185,000	$195,000
2007	$220,500	$184,250	$200,000
2008	$129,250	$194,500	$200,000
2009	$176,500	$185,000	$190,000
2010	$155,000	$180,000	$194,000

(from Vermont Housing Data – www.housingdata.org)

Table 6.3 – Number of Primary Residences Sold

Year	Reading	Windsor County	Vermont
1988	8	593	7,667
1989	5	483	6,146
1990	7	357	4,826
1991	5	311	4,496
1992	4	343	4,487
1993	4	469	5,737
1994	6	625	6,850
1995	5	509	5,559
1996	7	528	5,709
1997	6	508	5,106
1998	7	628	6,568
1999	12	723	7,924
2000	12	730	8,307
2001	8	760	8,277
2002	12	791	8,388
2003	15	819	9,147
2004	10	869	9,659
2005	11	846	9,312
2006	7	698	7,673
2007	6	524	6,508
2008	6	452	4,880
2009	4	382	4,452
2010	7	420	4,834

Figure 6.2 – Median Price of Residences Sold (1988-2010)

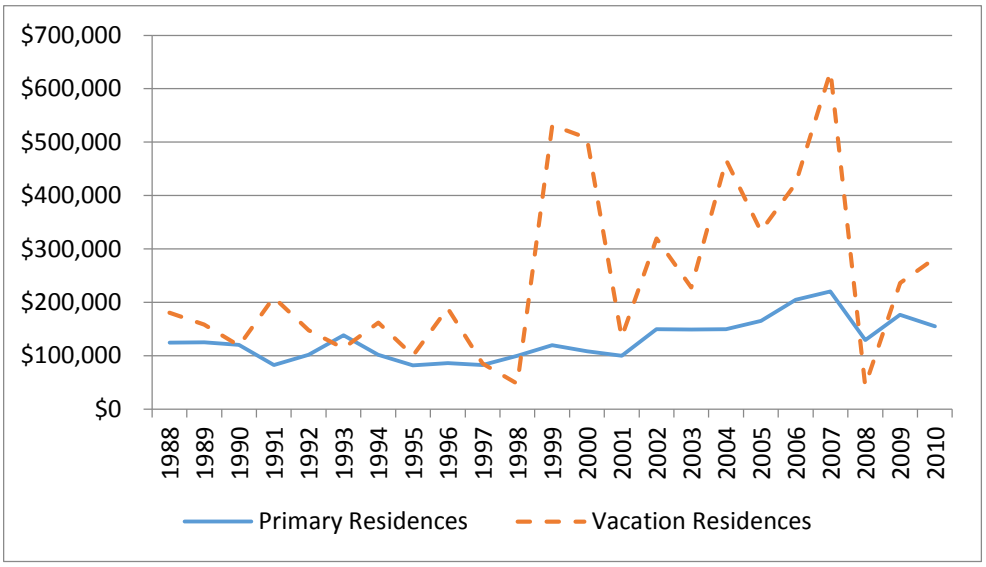


(from Vermont Housing Data – www.housingdata.org). Note that the number of houses sold in Reading alone was much smaller than at the County or State levels, so the "curve" appears to fluctuate more sharply than with the larger data sets.

When is Housing Considered Affordable?

Housing is considered affordable if a household has to spend no more than 30% of their annual income on housing. Housing costs for homeowners include mortgage payments (principal and interest), property taxes and insurance. Costs for renters include rent and insurance. The median household income in Reading in 2010 was $58,667. The median household income for Windsor County was $50,893 and for the State was $51,841. Therefore, an affordable house for a family that earns 80% of the County median income[13] would be approximately $137,500[14]. Table 6.2 indicates that in 2010 the median housing price was higher than that affordability target. However, median housing prices in Reading fluctuate from year to year due to the low numbers of houses sold each year. According to the same dataset, the value of "vacation residences" sold is much different, and generally much higher, than the value of primary residences. In 2010, the average value of vacation homes sold in Reading was $245,000.

Figure 6.3 - Median Price of Primary vs. Vacation Residences Sold in Reading (1988-2010)

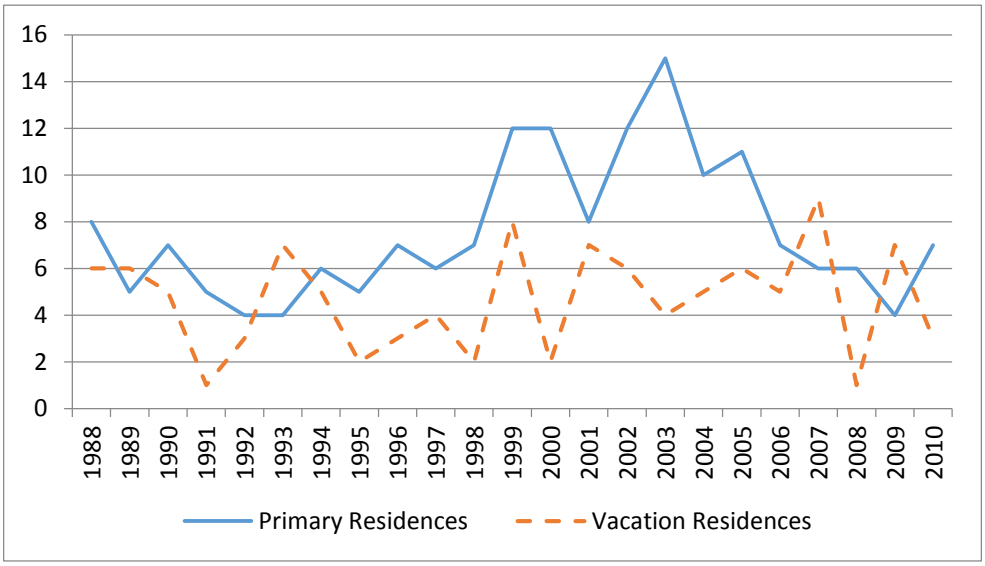


Transportation costs are also a significant budget item for most families. In general, transportation is considered to be affordable at no more than 15% of the annual household income[15]. According to the Location Affordability Index[16] for the Town of Reading, transportation costs are 31% of the annual income for a household which is earning 80% of the

[13] The general definition of affordable housing under 24 V.S.A. §4302 is housing costs that are not more than 30% of the household's gross annual income, for residents who's household income does not exceed 80% of the county median income.
[14] The affordable housing price was estimated based upon data from the American Community Survey (2006-2010) and using the Vermont Housing Finance Agency's home mortgage calculator.
[15] The 15% transportation affordability target is based upon a housing and transportation affordability analysis conducted by the Center for Neighborhood Technology.
[16] The Location Affordability Index was developed by the U.S. Departments of Transportation (DOT) and Housing and Urban Development (HUD) in order to quantify housing and transportation affordability

County median household income. Transportation costs are generally higher for Reading residents that travel to other towns, sometimes far away, for jobs and services.

Figure 6.4 – Number of Primary vs. Vacation Residences Sold in Reading (1988-2010)



The state's Municipal and Regional Planning and Development law (Chapter 117), includes provisions that encourage towns to allow for the development of housing types that are affordable for low to moderate income Vermonters. The law encourages towns to allow multifamily housing in certain areas of town, and requires that zoning bylaws allow accessory apartments to be built in all single-family homes or accessory structures.

Goals and Action Steps

1. Allow for the development of a diversity of housing types that will serve all income levels.
   - Review zoning regulations to ensure that they allow for development of housing that serves all income levels.
   - Work with state and regional housing providers to determine the feasibility of renovating vacant structures in Felchville to create affordable or mixed income housing projects in town.
   - Research the need for housing for low-income elderly residents.
   - Consider providing density bonuses for low-income, clustered housing developments.
   - Support the redevelopment or renovation of existing structures, especially in the village center (Felchville) in order to create housing that is affordable for low to median income households, and minimize the number of vacant buildings in the village center

Policies

1. The development of housing in Reading shall be consistent with the Town Plan.
2. The development of multi-family housing, and especially the conversion of older, larger

homes in the villages, shall be encouraged.

3. The development of cluster housing with covenants for long-term affordability of some units shall be encouraged.
4. Regional affordable housing programs shall be encouraged and supported.

Chapter 7

LAND USE

The two basic considerations for deciding the most appropriate use of land in Reading are first, what use(s) best serve Reading's residents, and second, what use(s) the land can reasonably support. Additional considerations are historic land use patterns, cultural values, and the relationship between development and the efficient provision of public services. Together, these factors form the basis for Reading's land use plan. One of the primary purposes of land use planning is to balance the legitimate interest of the community, as expressed through the planning process, with the rights and expectations of individual landowners. Achieving this balance is a difficult yet necessary function of the Town Plan.

Rural Character

One of the biggest issues facing Reading over the next five years is preserving the rural character of the Town, according to the results of the 2011 Reading Town Plan Survey. Another issue of importance was the rising school tax rate. Survey respondents were also interested in preserving open space and the character of the villages.

How is rural character defined in the context of this Plan? A general definition of rural character includes the following:

- Working landscapes, defined by the sustainable development and use of land-based resources, especially farming and forestry (This includes specialty crop production and intensive growing systems that are innovative with respect to new food production systems.);
- A sustainable natural environment, including clean air and water, expanses of open land, healthy wildlife populations and habitats, and a common commitment to the protection of those shared resources;
- Diverse cultural amenities including historic buildings and settlement patterns, small-scale local institutions and organizations; and commercial, recreational and social opportunities that engender a sense of community;
- A rural lifestyle, marked by relative privacy; peace and quiet; access to the land and nature; lack of formality; and a strong sense of independence and individualism.

The challenge for the Planning Commission is to ensure that by allowing growth consistent with the Goals of this Plan, they are also preserving the Town's rural character.

Villages

Survey respondents named Felchville as the most appropriate place for high-density residential and commercial development. Hammondsville and the intersection of Routes 106 and 44 also received favorable response from many for commercial development. A new fire and safety building is located at the junction of these routes. For these areas, the commercial uses encouraged included small retail activities, restaurants, nurseries, and professional offices. Home businesses also are considered important to town residents.

Mining and Industry

Currently there is no heavy industry in Reading but the Town has an Industrial/Mining district located at the intersections of Routes 44 and 106. In 2014, a wood pellet plant opened just over the town border from the I/M zoning district in West Windsor. The Town should review the areas designated for industrial development to determine whether these areas could support such uses since the past and recent Town Plan Surveys indicated that light manufacturing is fairly low on the respondents' list of priorities.

Historic Patterns of Land Use

Steeply sloped mountains, narrow stream valleys, and relative inaccessibility characterize the majority of land in Reading. There is little flat land, but some has slopes of ten percent or less. Elevations range from 700 feet along the banks of the North Branch of the Black River to 2,600 feet on Long Hill. These and other factors have naturally focused the most intensive development within a few small settlements.

A small, relatively flat corridor along the upper reaches of the North Branch of the Black River and Mill Brook is home to the villages of Felchville and Hammondsville. Outside of the areas of most concentrated development, especially along roads leading out of the villages, are lands that were traditionally farmland. Some of this land on the gentler hillsides and upland plateaus is still farmed, and much of it has been converted to residential use, both year-round and seasonal. The hamlet of South Reading is at the center of one of these areas.

Most of the land in Reading – the more rugged and inaccessible areas mentioned above, along with other land such as long-abandoned farms – remains undeveloped and is used mainly for forestry, recreation, and conservation. Much of this land is publicly owned, either as Town or State forest, and much of it is at elevations above 1,800 feet. The topography of the land and limited access probably mean that Reading will remain a small community with its most intense development largely confined to the valley lands along Route 106.

Table 7.1 - Distribution of Existing Land Uses

Land Use Class	% of Total Land Area
Developed	2.7%
Agriculture	5.8%
Open, Non-Agriculture	0.7%
Forested	89.9%
Open Water	0.3%
Wetlands	0.5%

Source: Land Cover (National Land Cover Dataset, 2006)

Future Land Use

In order to implement the goals, objectives, and policies of this Plan through zoning, the following land use categories are established and shown on the Future Land Use Map. Generally, land within the delineated areas is suitable for the uses and densities proposed in this Plan. However, the physical characteristics of certain individual properties may be such that engineering or environmental considerations will further limit development. Therefore, the

descriptions of appropriate land uses and densities should be interpreted generally – individual properties may have additional limitations.

Along with the development capability of the land and protection of valuable natural resources, the efficient provision and expansion of public services is the basis for Reading's land use categories. Directing growth to areas most effectively and efficiently serviced by utilities, roads, and schools will help the Town achieve its stated objectives of maintaining its rural character and controlling the cost of public services. Policies and regulations that discourage growth far from the village areas are consistent with these objectives. In general, commercial development and high density residential development should be limited to the three existing village areas, where services such as public water and sewer systems can be most efficiently built and expanded. Medium density residential development should be allowed in areas along Rte. 106 and the Tyson Road that are relatively flat and accessible. Development on the remaining, more remote, land should be limited to the lowest density uses because of the steeper terrain, higher elevations, more fragile environments, wildlife habitat and limited access to roads and other services.

Future Land Use Categories

Forest

The forest category represents land that is currently dominated by forest cover. Forests serve a variety of functions and uses, and contribute significantly to the Town's rural character. Forests protect air and water quality and support biological diversity. Woodlands provide critical habitat for many species of wildlife, including whitetail deer, moose, black bear, wild turkey and a variety of songbirds. Forests are also important to the local economy by providing products such as lumber, pulpwood, fuel wood, and maple sugar. Outdoor recreation is a way of life for many of the Town's residents and is an attraction for tourists. Woodlands support a variety of recreational pursuits including hunting, trapping, hiking, horseback riding, cross-country skiing, snowmobiling, and nature and foliage viewing. Forestland in Reading also supports some low-density residential uses.

Because of its inherent value, and because of its remoteness from most roads and other infrastructure, land in the forest category should continue to be used primarily for recreation, conservation, and sustainable logging.

The Town discourages "liquidation" logging operations, unless they are specifically necessary to preserve forest health.

Development densities in forest areas should be low to very low, generally 1 unit per 10 to 25 acres.

Agriculture

Agricultural lands, as shown on the map, have traditionally been in agricultural use or have been identified as having especially good potential for agricultural use due to their soil type. The use of land for agricultural purposes has declined sharply in Reading over the past several decades as farm values dropped and development pressures increased. Local agricultural production is beneficial to the local economy, is a significant part of Reading's traditional rural lifestyle, and helps maintain an appreciation for local culture and history. Therefore, development in agricultural areas should occur only in ways that avoid or minimize any reduction in agricultural

potential. Expansion of agricultural operations should be done to avoid cultural resources like stonewalls and stone cellar holes. Manure utilization systems could consider composting systems rather than liquid manure systems that may be prone to water and soil quality degradation

In the future, the Town should consider the creation of agricultural overlay zones as a part of its Zoning Ordinance. Areas that could be so designated include the Bailey's Mills area, Reading Farms, Springbrook Farm, the Jenne Farm, Newhall Farm, Lexington Farm, Rowlee Farm, and Barnleigh (Cook) Farm.

The Town encourages local farmers to focus their efforts on the development of sustainable methods of farming that are productive and profitable. Specifically, the Town encourages farmers to pursue the following goals where feasible:

- Use farming methods that prevent water pollution, prevent soil erosion and degradation, and protect public health and safety;
- Stabilize and increase farm incomes through crop and enterprise diversification.

The intent of agricultural planning is to protect Reading's agricultural heritage and increase the number of employment opportunities in that field.

Development densities in agricultural areas should be low, generally 1 unit per 10 acres.

Rural Residential

Rural residential areas have been identified as being well suited to residential development at low overall densities. They were designated residential because of factors such as existing settlement patterns, access to existing improved roads, the cost-effectiveness of providing public services in the future, slope, soil conditions, and others. Development densities in the rural residential areas should be generally 1 unit per 5 acres. "Cluster development" is encouraged where appropriate, provided that overall density remains low (i.e. 5-acre density could be 5 houses on 5 acres of land with 20 acres left as open space).

High Density Residential

Higher density residential development should take place in and around the village areas. The Town should investigate the possibility of allowing for shared septic systems, a public sewer system and/or consider implementing a public water supply for areas of dense development. Development densities in the high density residential areas should generally be 1 unit per acre, as site conditions allow.

Mixed Use

Mixed-use development is characterized by a commercial or retail use on the first floor of a building with a residential use on upper floors. In Reading, the pattern has been a mix of residential and commercial uses on separate small lots within village centers. In order to maintain the Town's character, provide necessary public services at the lowest cost, and maintain appropriate traffic volumes and patterns on all roads, mixed-use areas have been restricted to the existing village areas of Felchville and Hammondsville. Access to public roads should be

actively managed to prevent traffic congestion and sprawl in mixed-use areas. Development in these areas should be consistent with smart growth principles as defined in 24 V.S.A. §2791(13).

The State-designated Village Center in Felchville serves as the community's traditional center that has a mix of commercial, civic and residential uses, and public gathering places. This area is the focus of local revitalization efforts as described in more detail in the Economic and Transportation sections of this Plan. The Village Center serves as the primary location for retail and other commercial uses typical of traditional Vermont villages, as well as the most intensive residential development.

Development densities in the Mixed Use areas should be the highest in Reading, generally 1 to 2 units per acre, as site conditions allow.

Industrial/Mining

Currently there is no heavy industry or mining in Reading. The Town should determine whether industry/mining is desired in any district in Reading.

Conservation

Conservation lands have been determined to have unique and/or outstanding environmental or recreational qualities. They represent high elevation ecosystems, unique forest types, especially valuable wetlands, wildlife habitat, potential drinking water sources, and other lands that the Town considers to be irreplaceable and worth preserving in their present condition. Aside from limited and sustainable forestry practices, and recreational uses, activity in these areas should be limited. Development densities should be very low in the Conservation area, generally 1 unit per 10 to 25 acres.

The Conservation area combined with the Significant Wildlife Habitat Overlay represent priority forest blocks and habitat connectors as discussed in the Forest Resources section of this plan. Land development in these areas should be carefully designed in order to minimize forest fragmentation and promote the health, viability and ecological function of forests. These areas correspond to the Significant Wildlife Habitat Overlay District as adopted into the zoning bylaws in July 2019.

Timing of Development

Reading is a rural community, which has historically seen relatively low rates of growth. Residents wish to continue this steady and slow-paced pattern of growth, and to the extent possible, prevent sudden large increases in population which would place undue stress on Town facilities and rural character. The Town may consider phasing larger developments as part of the local land use approval procedure in order to ensure that municipal facilities and services have the capacity to accommodate the growth.

Goals and Action Steps (Goals are numbered, Action Steps are indicated by an arrow)

1. Protect and enhance Reading's scenic landscape and rural character.

- Revise zoning bylaws where necessary and consider the further use of subdivision regulations to require that residential development be configured in a manner that preserves scenic resources, meadowland and fragile features and be clustered such that the majority of

development activity is located on the least sensitive portion of the land. The Town may want to consider phasing of larger developments as part of a subdivision regulation to ensure that Town services have the capacity to accommodate the growth

- Consider creating an agricultural overlay zone with strict restrictions on the development of prime farmland. Areas that could be so designated include the Bailey's Mills area, Reading Farms, Springbrook Farm, the Jenne Farm, Newhall Farm, Lexington Farm, Rowlee Farm, Barnleigh (Cook Farm), and existing specialty crop operations.

Policies

1. The sustainable development and use of land-based resources, such as farming and forestry, consistent with other goals and policies of the Town Plan shall be encouraged.
2. Cultural features, such as farm and logging roads, stonewalls, tree and fence lines, cellar holes and agricultural buildings, shall be preserved where appropriate. Any cultural features that are modified or removed should be photographed or field surveyed by the Town's Historical Society or by a Conservation Commission.
3. The Town shall work with public and private entities to prepare development or resource management plans that will further the aims of this chapter.
4. The Town shall work with the Upper Valley Land Trust or the Vermont Land Trust to assess and implement easement programs to preserve agricultural and ecologically sensitive land.
5. The Town shall work with the Vermont Department of Forest, Parks and Recreation and the Vermont Fish and Wildlife Department to update management plans for State lands located in Reading.
6. Allow future growth at a rate not greater than the Town's ability to assume additional costs brought on either directly or indirectly as a result of that growth, and that is compatible with the Town's existing character.
7. Cluster development shall be encouraged where appropriate.
8. The Town shall determine if industry/mining is desirable in any district in Reading.
9. The Town shall investigate the possibilities for any type of development on any of the lands in the current Industrial/Mining Zone.

Chapter 8

ECONOMIC DEVELOPMENT

If the Town of Reading wants a healthy local economy, then it must support the businesses that are already located here, support the conditions that allow new businesses to grow here, promote a healthy environment for people and wildlife, and protect natural, scenic, and historic resources. In accordance with Act 52, enacted in 2011, the purpose of this Chapter is to describe current and future economic conditions and identify policies, projects and programs necessary to foster economic growth.

Current Economic Conditions

Historically, agriculture and milling businesses were the core of Reading's local economy. As a small rural town today, Reading's residents rely primarily on jobs located in other towns. Local businesses and employers include Town government, Reading Elementary School, Happy Acres Farm, Jenne Farm, Rolling Meadows Farm, Newhall Farm, Springbrook Farm, Bailey's Mills Bed and Breakfast, the 1815 House Restaurant (closed and for sale at the start of 2013), Keeper's Cafe, Watroba's Country Store, Reading Hardware Store (closed in 2004), Reading Greenhouse and Farm Market, several forestry related businesses, a number of construction businesses, several antique shops, and a number of home occupations, such as a bakery, furniture repair shop, and a dog boarding business.

The businesses in Felchville, in addition to selling their products, serve as gathering places and message boards for the community. They offer goods and services within walking distance for village residents, and within a short drive for most of the town. As the availability and quality of high speed Internet access improve in Reading, many more people will be able to work from home than in the past. Home occupations or home based businesses are traditional ways people in Vermont earn their living, and access to high quality Internet service will enhance their business efforts.

Longitudinal Employer-Household Dynamics (LEHD) data available through the U.S. Census Bureau summarizes local economic conditions. Unfortunately, the most current data is for 2010 and LEHD data underreports self-employed occupations. Nevertheless, according to that data, residents were employed in 240 jobs in 2010, of which 223 were primary jobs and 17 second jobs. The primary economic sectors for employment, in order of importance were health care, education, leisure/hospitality services, manufacturing, and retail trade.

The most common commutes were to Woodstock, Lebanon NH, Windsor, Ludlow, Springfield, Hartford, and Hanover NH.

According to the Housing Chapter, the median household income in Reading in 2010 was $58,667. In 2010, the median housing price for a primary residence was higher than what would be affordable to those making the median household income. But the median value of primary residences sold fluctuates significantly, with some years being close to the affordable housing cost targets.

As a small town that relies on jobs in other communities, it is important for Reading to consider local economic development initiatives in context with the broader area surrounding the Town.

The *Comprehensive Economic Development Strategy (CEDS) for East Central Vermont* analyzes economic development for the Windsor and Orange County area and informs this chapter. Based on the *CEDS* and local conditions, key considerations for Reading's economic development include:

1. VT Routes 44 and 106 and the Tyson Road are of primary importance for the movement of people, goods and services.
2. The relative lack of cell phone and high speed Internet services limit home occupations and local businesses.
3. The development of formal park-and-ride facilities, organized carpools, or commuting vanpool or bus services would benefit Reading workers who travel long distances to work.
4. There is no municipal water supply or wastewater treatment infrastructure to support additional residential or commercial growth in Felchville.
5. Local businesses are eligible for tax credit programs that encourage voluntary improvements to historic buildings since Felchville is now designated by Vermont as a Village Center.
6. Bicycling tours are popular along VT Route 106 and the Tyson Road, but there are limited bicycle facilities and amenities in the area. Also, there is a lack of road signs alerting motorists about bicycle activity along these routes.
7. There is limited parking space in Felchville for future businesses.

Desired Future Economic Conditions

In accordance with the State Planning Goals (24 V.S.A. §4302(c)), Reading should encourage local stores and community services within the village of Felchville and agriculture (traditional practices as well as vineyards, cheese making, and other new ventures), sustainable forestry, forest related businesses, and home occupations in the surrounding rural landscape. Efforts to provide Reading residents with commuting options (including telecommuting, ridesharing, and vanpools or transit services) will improve access to quality jobs and reduce individual transportation costs and impacts.

There is strong local support for revitalizing the Felchville Village Center. This entails enhancing the streetscape, making it a pleasant and safe place to walk, investing in existing buildings, slowing traffic down, and making it a place where both residents and visitors want to go.

The Village Center was originally designated by the State Downtown Board on April 23, 2018. Village Center designation is an important tool to help implement some of the key goals of this Town Plan. Benefits of designation include, but are not limited to, tax credits for investments to income producing properties within the designated village center, and priority consideration for a number of grant programs.

Improvements to the following infrastructure will help to facilitate this desired economic growth:

1. Telecommunication facilities (cell phone and high speed Internet) should be encouraged as discussed in more detail in the Utilities and Facilities Chapter of the Plan.
2. A municipal water supply or wastewater treatment facility in Felchville would support

additional residential or commercial growth in the village.

3. Safety improvements to highway shoulders and the provision of bicycle parking and other amenities would encourage additional bicycle activity and enhance related local business. New road signs should be placed along popular bicycle routes alerting motorists to this additional activity. The Town and state should be aware that as they improve road quality motorists often drive faster, increasing the danger to bicyclists, hikers, and horseback riders.
4. The Town may wish to reconsider sidewalks in Felchville to support future economic growth.
5. Adequate parking should be available in Felchville for commercial and car-pooling uses.
6. The Town should consider further streetscape improvements to both enhance the village and attract new residents and businesses. Examples of such improvements include curbing and landscaping along Route 106, pedestrian seating and additional lighting in town, marked crosswalks or special pavement treatments where pedestrians tend to cross the highway.
7. To promote a stronger town center in Felchville, Reading should consider improvements that suggest a town green or park.

Goals and Action Steps (Goals are numbered, Action Steps are indicated by an arrow)

1. Provide high speed Internet to all residents of Reading consistent with the concerns of the Utilities and Facilities Chapter of the Plan.
2. Expand the existing cell phone and emergency services communication coverage throughout Reading consistent with the concerns of the Utilities and Facilities Chapter of the Plan.
3. Improve the quality of roadway surface conditions on the Tyson Road and VT Routes 44 and 106.
   - Coordinate with the Southern Windsor County Regional Planning Commission and Vermont Agency of Transportation to budget and schedule roadway or pavement improvement projects, but with the awareness that better road surfaces encourage higher speeds and additional safety concerns for bicyclists, hikers, and horseback riders.
   - Coordinate with the above agencies to evaluate establishing bicycle lanes along VT Route 106 and the Tyson Road and providing bicycle parking and other amenities in Felchville.
   - Coordinate with the above agencies to add signs long VT Route 106 and the Tyson Road to alert motorists to the presence of bicyclists.
4. Promote alternative transportation as a way to improve access to jobs and reduce individual commuting costs.
   - Coordinate with the Southern Windsor County Regional Planning Commission and Vermont Agency of Transportation to provide residents with information on the Go Vermont commuter choice program. (See: http://www.connectingcommuters.org/)
   - Seek funding through the Municipal Park-and-Ride Grant Program or other grants to build a local commuter lot to encourage ridesharing.
5. Improve infrastructure to support a vibrant local economy in Felchville.

- Maintain Village Center designation to provide financial incentives for improvements to eligible historic buildings.
- Evaluate the feasibility and cost/benefit for a small decentralized wastewater system or public water supply to provide services for Felchville or sections within Felchville.
- The Town may wish to reconsider sidewalks in Felchville.
- The Planning Commission should study the adequacy of parking in town for all purposes: public events, current and future commercial activity, carpooling, etc. The Planning Commission should consider amending the Zoning Ordinance to allow for flexible/shared parking for current and future commercial uses in Felchville.

Policies

1. Promote business growth that will enhance the rural character that Reading's residents so strongly value.
2. Support Home Occupations that are customary in residential areas and consistent with the provisions of the current Zoning Ordinance
3. Encourage all Home Based Businesses that meet all the provisions of the current Zoning Ordinance. Such uses shall not negatively impact the character of the area in which they are located.
4. Encourage the development of small-scale commercial operations in Hammondsville and Felchville. Such businesses shall be compatible with existing residential and commercial uses and the current Zoning Ordinance and shall not require Town expenditures on infrastructure.
5. Industrial uses shall not have an undue adverse impact on neighboring properties and property values; public facilities and services; drainage, surface and groundwater supplies; or other natural, cultural, historic or scenic features in the vicinity of the operation.

Chapter 9

IMPLEMENTATION AND RELATIONSHIP TO LOCAL AND REGIONAL PLANS

Each chapter of the Reading Town Plan lists action steps, policies and goals for implementing the plan. In addition, other town and private organizations may use this plan to prepare Act 250 permits, grant applications and use this document to support or review any regulatory or non-regulatory planning issues that may apply. This chapter recommends and prioritizes projects for the Town that will help implement the Plan over the next five years. This chapter also considers the relationship of the Reading Town Plan to the plans of the Southern Windsor County Regional Planning Commission (SWCRPC) and surrounding towns.

How the Town Plan Relates to Development Trends

Significant population growth is not anticipated for the next 20 years. Therefore, many of the identified public infrastructure needs in this Town Plan are based upon maintaining the existing facilities, such as roadway maintenance and culvert replacements, as well as evaluating the feasibility of future water or wastewater infrastructure solutions. In light of recent trends, this Plan seeks to encourage economic development initiatives in ways that reinforce Village Center revitalization, maintain rural character, and preserve/enhance quality of life.

Relationship to Local and Regional Plans

Reading is located in the northwest corner of the Southern Windsor County Regional Planning Commission's ten-town region, is served by the State of Vermont, District 2 Environmental Commission, in Springfield, and is located in Vermont Agency of Transportation (VTrans) Maintenance District 4, in Dummerston, which provides regular maintenance of Routes 44 and 106.

Southbound view along Vermont Route 106 entering Town from the North.

In order for local land use planning to be effective, it must be done with the understanding and consideration of land use and development trends in areas outside town boundaries.

Northbound view along Vermont Route 106 just before approaching Vermont Route 44.

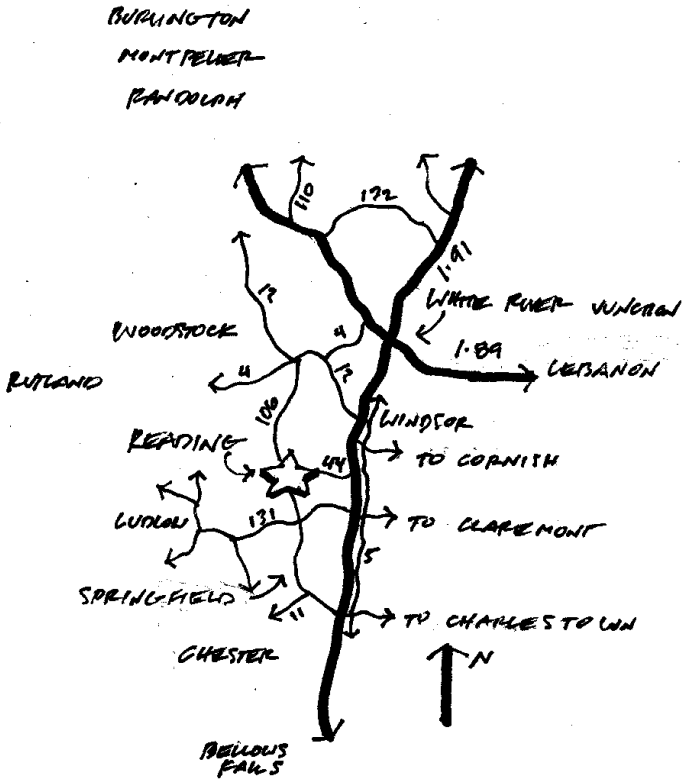
Local goals can only be reached if they are identified and pursued within the context of a community's place in the surrounding region. Reading is surrounded by the towns of Plymouth, Woodstock, West Windsor, and Cavendish, and in proximity to Weathersfield, Windsor, Springfield, Ludlow, Mount Holly, Chester, Bridgewater and Baltimore. Cities, towns and services in the region that affect Reading's economic growth, prosperity and its sustainability include some of the outlying communities of Claremont, Charlestown, Newport, Hanover and Lebanon, New Hampshire and the areas of Bellows Falls, White

River Junction, Randolph, Montpelier, Rutland and perhaps further to Burlington, Vermont.

Reading's traveling network to local, regional and outlying areas in New Hampshire and other points in Vermont is illustrated by the 2012 Town Survey of the miles and directions that residents commute:

Direction	*Less than 15 miles*	*15-30 miles*	*30-50 miles*	*More than 50 miles*
North	*26.9%*	***38.5%***	*19.2%*	*15.4%*
South	*30.8%*	***38.5%***	*0*	*30.8%*
East	***50.0%***	*37.5%*	*0*	*12.5%*
West	*16.7%*	*16.7%*	***33.3%***	***33.3%***

The towns surrounding Reading are faced with varying degrees of development pressure. Some of this pressure is the result of local economies, area industries or the normal cycle of growth and changes of land ownership between generations.



Town plans in the area surrounding Reading were evaluated in order to determine if Reading's Town Plan is compatible. Generally speaking, all town plans for surrounding areas call for the highest intensity uses in and around villages to be surrounded by rural countryside. This is consistent with Reading's future land use map and plan. More specifically, the following plans are discussed in more detail below:

- *2013 Bridgewater Town Plan*: The very small area along the Bridgewater and Reading town line is in the vicinity of Richmond Hill. Bridgewater's "rural low" future land use category is similar to Reading's "forest" category along this boundary line.

- *2013 Woodstock Town Plan*: Reading's future land use plan calls for a combination of "forest" and "conservation" along the northerly boundary, which is consistent with Woodstock's "FR" and "R5" designations.

- *2012 Plymouth Town Plan*: The Plymouth and Reading town boundary is dominated by a large network of State-owned lands. As a result Plymouth's "conservation" and "rural

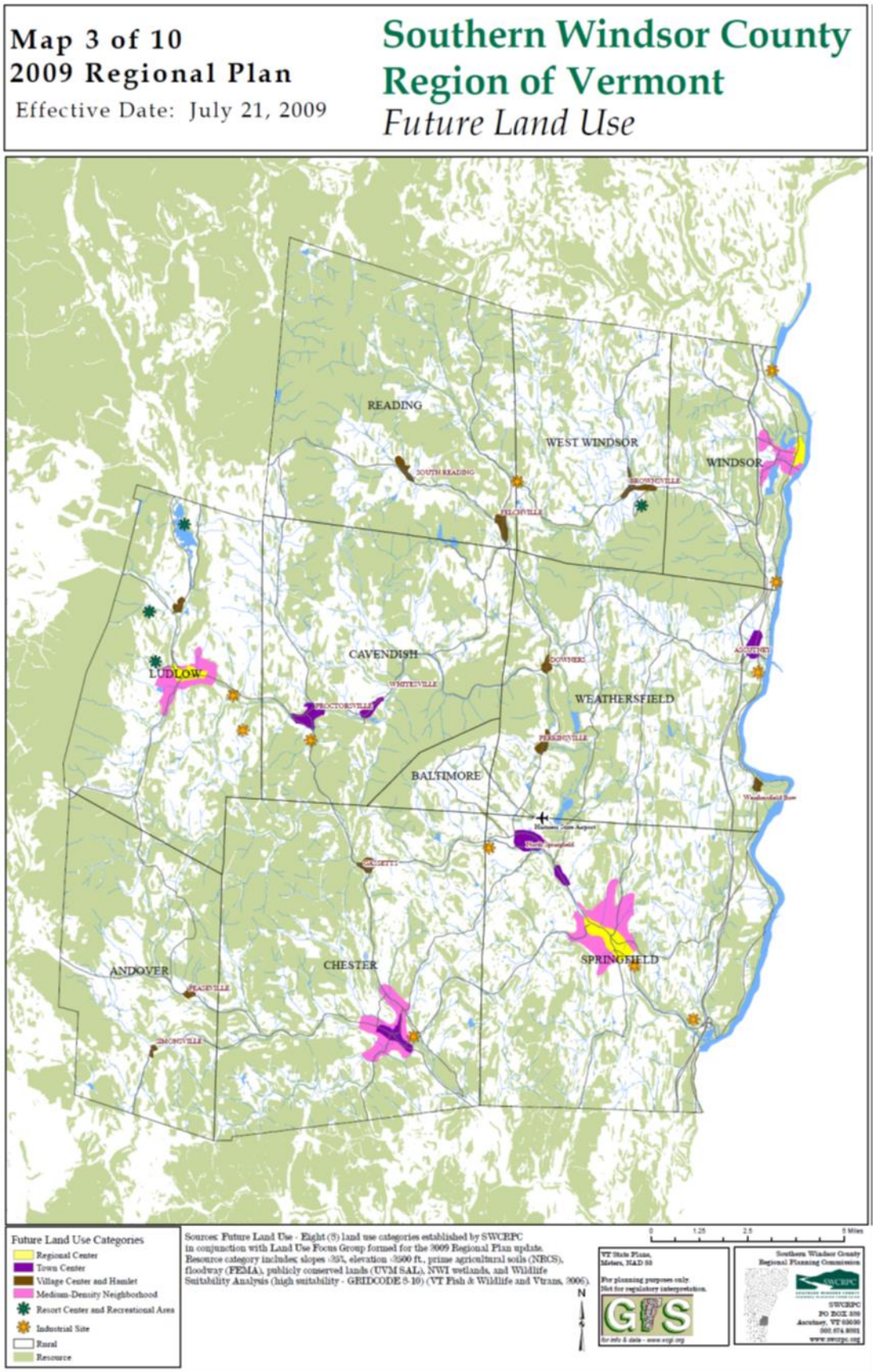
residential 10" future land use areas correspond very closely with Reading's "forest" and "conservation" areas. The limited area along the Tyson Road, designated as "rural residential" in Reading and "rural residential 5" in Plymouth are very similar.

- *2010 West Windsor Town Plan:* West Windsor and Reading share the former mining area located on either side of the town line just south of VT Route 44, and both town plans include small areas that allow for similar future uses. The remainder of West Windsor's boundary is a combination of "conservation" and "rural residential", which are similar in effect to Reading's "conservation" and "forest" categories.

- *2012 Cavendish Town Plan*: Along the Cavendish and Reading boundary, the conservation areas for the Knapp Pond area in each town plan correspond quite closely. The "forest" category in both future land use plans is also very similar. Both towns call for "rural residential" areas along Twenty Mile Stream Road and VT Route 106/Knapp Brook Road.

The Southern Windsor County Regional Plan provides guidelines for planning, coordination and review of the natural, cultural, social and economic features of the Southern Windsor County region. SWCRPC Regional Plan, Regional Transportation Plan and Regional Bicycling and Walking Plan provide a broader framework and context for local planning efforts. The Town Plan should support and complement the land use and development goals of these regional planning documents.

The most recent Future Land Use map from the SWCRPC's Regional Plan supports concentrated growth in the villages and hamlets, to be surrounded by a rural working landscape. In general, this is consistent with Reading's Town Plan. However, the Hammondsville area is within the Regional Plan's "rural" category, which supports a variety of land uses but the articulated desire is for rural character to remain the dominant feature. The Regional Plan recognizes that small-scale commercial uses occur in these areas to a limited degree, and such uses are encouraged in nodes or clusters, rather than in linear development patterns along major roadways (i.e. in order to avoid strip commercial development). In Reading's Town Plan, Hammondsville is in the "mixed use" category which allows for commercial development. The Hammondsville mixed use area was reduced in size to better reflect existing densities. This change also improves consistency with the proposed wildlife overlay district and the Regional Plan.


Map 3 of 10
2009 Regional Plan
Effective Date: July 21, 2009
Southern Windsor County
Region of Vermont
Future Land Use
READING
WEST WINDSOR
WINDSOR
CAVENDISH
LUDLOW
WEATHERSFIELD
BALTIMORE
CHESTER
SPRINGFIELD
ANDOVER
Future Land Use Categories
Regional Center
Town Center
Village Center and Hamlet
Medium-Density Neighborhood
Resort Center and Recreational Area
Industrial Site
Rural
Resource
Source: Future Land Use - Eight (8) land use categories established by SWCRPC in conjunction with Land Use Focus Group formed for the 2009 Regional Plan update.
Resource category includes: slopes >25%, elevation >2500 ft., prime agricultural soils (NRCS), floodway (FEMA), publicly conserved lands (UVM SAL), NWI wetlands, and Wildlife Suitability Analysis (high suitability - GRIDCODE 8-10) (VT Fish & Wildlife and Vtrans, 2006).
N
0
1.25
2.5
5 Miles
VT State Plane, Meters, NAD 83
For planning purposes only. Not for regulatory interpretation.
GIS
for info & data - www.svgc.org
Southern Windsor County Regional Planning Commission
SWCRPC
PO BOX 320
Ascutney, VT 05030
802 674 8921
www.swcrpc.org

Implementation

The purpose of the Town Plan is to present a vision for the future of the Town. This vision can be implemented in a number of ways. The goals and policies within the chapters of the Plan are reviewed during the Act 250 State development review process in order to determine if the development fits within the Town's vision. In addition, the Plan includes Action Steps that can be taken in order to achieve the goals presented in the individual chapters.

The Implementation Matrix on the following pages lists project recommendations that have been discussed in the chapters of the Town Plan, and identifies costs and priority of these projects as well as the parties who would be responsible for making recommended projects happen.

Looking northbound along Vermont Route 106, Watroba's General Store at the Tyson Road intersection.

Reading Elementary School.

The Claude Bartley Memorial Field.

Reading Greenhouse and the former Reading Hardware / True Value Store

Robinson Hall.

View from Spring Brook Farm looking west.

Historic Indian Stones, near the intersection of Felchville Gulf Road and Vermont Route 106.

Route 106 and Mill Brook bridge crossing near Hurricane Hill Road.

Table 9.1 - Implementation Matrix for the Reading Town Plan

Recommendation	Chapter in Town Plan	Responsible Party	Expected Timing: Ongoing	Expected Timing: 0-2 Years	Expected Timing: 3-5 Years	Expected Timing: 5-10 Years	Priority of Need (Low, Medium, High)	Generalized Cost Estimate	Method of Financing
Review development within all flood hazard and river corridor protection areas in order to mitigate risks to public safety, critical infrastructure, historic structures and municipal investments.	*Natural Resources (2)*	*Planning Commission/SWCRPC*		X			*High*	*Low*	*Grant*
Traffic speed enforcement	*Transportation (3)*	*Selectboard/Sheriff*	X				*Medium*	*Moderate*	*Annual Budget*
Explore options to improve visibility at VT 106 and Tyson Road intersection	*Transportation (3)*	*Selectboard/SWCRPC/ property owner*		X			*High*	*Low*	*Grant*
Identify and study the feasibility of developing a municipal park and ride lot north of Felchville	*Transportation (3, Economic Development (8)*	*Selectboard/SWCRPC*			X		*Medium*	*Moderate*	*Grant*
Coordinate with VTrans & SWCRPC to add signs long VT Route 106 and the Tyson Road to alert motorists to the presence of bicyclists.	*Economic Development (8)*	*Selectboard*		X			*Medium*	*Low*	*State Aid/Grant*
Develop an inventory of erosion sites on gravel roads and implement ways to mitigate erosion problems at these sites in order to protect surface water quality	*Transportation (3)*	*Highway Dept./SWCRPC*			X		*Low*	*Low-Moderate*	*Better Backroads Category A Grant*
Identify the feasibility of sidewalks in Felchville and bicycle lanes on VT 106	*Transportation (3)*	*Planning Commission/SWCRPC*				X	*Low*	*Moderate*	*Bike/Ped or Transportation Alternatives Grant*
Maintain Village Center designation	*Economic Development (8)*	*Planning Commission/SWCRPC*		X			*Medium*	*Low*	*Municipal Planning Grant*
Engineering study of wastewater and/or shared water supply solutions for Felchville	*Utilities & Facilities (4)*	*Selectboard*			X		*Medium*	*Moderate*	*Apply to Planning Advance Program for loan*

Monitor school enrollment and cost per student	*Utilities & Facilities (4)*	*School Board*	*X*				*High*	*Low*	*Operations budget*
Study the adequacy of parking in town	*Economic Development (8)*	*Planning Commission, SWCRPC*			*X*		*Medium*	*Low*	*Municipal Planning Grant/transportation grant*
Develop a comprehensive capital improvements plan to guide the planning for public buildings, equipment, and roads.	*Utilities & Facilities (4)*	*Planning Commission, Selectboard, SWCRPC*			*X*		*Medium*	*Low*	*Municipal Planning Grant*
Conduct an energy audit on municipal buildings and begin to implement energy-saving and energy-creating programs	*Utilities &Facilities (4), Energy (5)*	*Planning Commission, Selectboard (with Efficiency Vermont)*		*X*			*High*	*Low*	*Grant*
Investigate the use of LED and/or solar powered street lights in Felchville	*Energy (5)*	*Selectboard*		*X*			*Medium*	*Low*	*Grant*
Work with state and regional housing providers to research the feasibility of renovating vacant structures in Felchville to create affordable or mixed-income housing in the village	*Housing (6)*	*Planning Commission/SWCRPC/ Regional Housing Organizations*		*X*			*Medium*	*Low-Moderate*	*Grant*

Appendices

Appendix A Glossary

Appendix B Summary of Survey Results

Appendix C Forest Landowner Survey Results

Appendix D Priority Watershed Improvements

Appendix A

GLOSSARY

Accepted Agricultural Practices (AAP's): Accepted Agricultural Practices (AAPs) are state-wide restrictions designed to conserve and protect natural resources by reducing non-point source pollution through the implementation of improved farming techniques rather than investments in structures and equipment. All agricultural operators in Vermont are required to conduct their farming activities in compliance with the AAPs, including all medium and large farms operating under permits.

Note that Accepted Agricultural Practices and Best Management Practices are two different levels of practices to reduce agricultural nonpoint source pollution. Best management practices are more restrictive than Accepted Agricultural Practices and will be site specific practices prescribed to correct a problem on a specific farm.

Alternate Energy Source: Alternate energy source generally refers to an energy source that is not based upon fossil fuels (i.e. renewable energy sources, such as solar, wind, micro-hydro, geothermal).

Aquifers: Aquifer means a water bearing stratum of permeable rock, sand, gravel or other alluvial soils.

Canopy: A layer of foliage in a forest stand. This most often refers to the uppermost layer of foliage, but it can be used to describe lower layers in a multistoried stand. Leaves, branches and vegetation that are above ground and/or water that provide shade and cover for fish and wildlife.

Catalytic Combustor: a device that is commonly used to promote the oxidation of combustibles on a catalytic surface accompanied by the release of heat but without flame. In wood stoves, a catalytic combustor can result in lower firebox temperatures and less fuel consumption without a decrease in heat output, and a reduction of toxic emissions.

Channel: An area that contains continuously or periodically flowing water that is confined by banks and a stream bed. (See Stream)

Class 1 Road: Class 1 roads are those town highways which form the extension of a state highway route and which carry a state highway route number. VTrans shall determine which highways are to be class 1 highways. There are no Class 1 roads in Reading.

Class 2 Road: Class 2 roads are those town highways selected as the most important highways in each town. As far as practicable they shall be selected with the purposes of securing trunk lines of improved highways from town to town and to places which by their nature have more than normal amount of traffic. The selectmen, with the approval of VTrans, shall determine which highways are to be class 2 highways.

Class 3 Road: Class 3 roads are all traveled town highways other than class 1 or 2 highways. The selectmen, after conference with a representative of the agency shall determine which highways are class 3 town highways.

The minimum standards for class 3 highways are a highway negotiable under normal conditions all seasons of the year by a standard manufactured pleasure car. This would include but not be limited to sufficient surface and base, adequate drainage, and sufficient width capable to provide winter maintenance, except that based on safety considerations for the traveling public and municipal employees, the Selectboard shall, by rule adopted under 24 V.S.A. chapter 59, and after following the process for providing notice and hearing in section 709 of this title, have authority to determine whether a class 3 highway, or section of highway, should be plowed and made negotiable during the winter. However, a property owner aggrieved by a decision of the Selectboard may appeal to the transportation board pursuant to subdivision 5(d)(9) of this title.

A highway not meeting these standards may be reclassified as a provisional class 3 highway if within five years of the determination, it will meet all class 3 highway standards.

Class 4 Road: Class 4 town highways are all town highways that are not class 1, 2, or 3 town highways or unidentified corridors. The Selectboard shall determine which highways are class 4 town highways.

Cluster Development: Clustering is a development design technique that concentrates buildings on a part of the site to allow the remaining land to be used for recreation, common open space, and/or the preservation of environmentally sensitive features (e.g. wildlife habitat, wetlands, prime agricultural soils, etc.). Cluster development is sometimes referred to as planned unit development (PUD) or traditional neighborhood development (TND).

Cluster Housing: See cluster development. Cluster housing is sometimes referred to as planned residential development (PRD) or conservation subdivision.

Density Bonus: Density bonus refers to the granting of additional dwelling units beyond the maximum allowed under the zoning district standards, in exchange for providing or preserving an amenity at the same or separate site.

Efficiency Vermont: Efficiency Vermont is an energy efficiency utility that is administered by Vermont Energy Investment Corporation (VEIC), an independent nonprofit energy services organization under an appointment by the Vermont Public Service Board. Efficiency Vermont helps all Vermonters to reduce energy costs, strengthen the local economy, and protect the environment by making homes and businesses energy efficient.

Energy Audits: An energy audit is an assessment of where your house or business is losing energy and identifies cost-effective improvements to make your home more energy efficient.

Flood Hazard Areas (FEMA Special Flood Hazard Areas): Special flood hazard areas are the lands within the floodplain as mapped by FEMA that are subject to a 1 percent or greater chance of flooding in any given year. These areas are regulated by Section 5.5 of the Reading Zoning Bylaws.

Flood Resilience: Flood resilience refers to steps to reduce a community's risk from future flooding damages, which may involve efforts to avoid new development in identified flood hazard and river corridor protection areas, protect and restore floodplains and upland forested areas that attenuate and moderate flooding and fluvial erosion, and/or to plan for flood emergency preparedness and response.

Forest Fragmentation (See Fragmentation)

Fragmentation: Fragmentation refers to the act of subdivision or land development that reduces the size, connectivity and functionality of a resource area (e.g. large blocks of forestland, critical wildlife habitat and travel corridors that connect them, prime agricultural soils that facilitate existing or future farming).

According to a recent report by VNRC, subdivision and land conversion can negatively affect plant and animal species, wildlife habitat, water quality, recreational access, and the ability of forests to sequester and store carbon. They can also affect the contiguous ownership, management, and viability of forest parcels to contribute to the region's rural economy.

Fragmentation of Wildlife Habitat (See Fragmentation)

Hamlet: A hamlet is a small, traditional settlement characterized by a cluster of homes (i.e. South Reading). Hamlets are smaller than villages and generally do not have commercial uses, but may have public or semi-public uses, such as a common or church.

High Elevations: High elevation areas generally refer to land elevations at or above 1,800 feet, which are poorly suited for land development due to a variety of factors, including steep slopes, shallow or erodible soils, poor septic suitability and other factors.

Home-Based Business: A business carried out by the property owner, who resides at the site, in a principal or accessory structure. (See Section 4.8 in the Zoning Bylaws)

Home Occupation: Any occupation customary in residential areas, carried on by a resident at his residence, provided that the use occupies a minor portion of the dwelling/accessory structure, does not materially change the character of the area and is clearly incidental to the principal use as a residence. (See Section 4.7 in the Zoning Bylaws)

Household: A household includes all the people who occupy a housing unit as their usual place of residence.

Housing Affordability: Affordable housing refers to the ability of a homeowner or renter to be able to pay for a reasonable, safe place to live based upon their income. A house is generally considered affordable when the cost does not exceed 30% of a household income. Under Vermont planning law (24 V.S.A. §4303), affordable housing is that which is owned or rented for not more than 30 percent of the household's gross annual income, when based on a gross annual household income that does not exceed 80 percent of the county median income. (Affordable housing does not mean subsidized or Section 8 housing.)

Housing Units: A housing unit is a house, an apartment, a group of rooms, or a single room intended for occupancy as separate living quarters. Separate living quarters are those in which the occupants live separately from any other individuals in the building and which have a direct access from the outside of the building or through a common hall.

Instream Cover: (See Riparian Cover)

International Energy Conservation Code (2009): Published by the International Code Council (ICC), the International Energy Conservation Code is designed to provide a modern, up-to-date energy conservation code addressing the design of energy-efficient building envelopes and installation of energy efficient mechanical, lighting and power systems through requirements emphasizing performance. It establishes minimum regulations for energy efficient buildings using prescriptive and performance-related provisions.

Large woody debris: Pieces of wood larger than 10 feet long and 6 inches in diameter, in a stream channel.

LED: Light-Emitting Diode (LED) refers to a semiconductor diode that emits light when conducting current. LED lighting is notable for being a significantly energy efficient source of lighting.

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

Liquidation Logging: Liquidation logging is a forestry practice that removes all saleable timber while leaving undesirable species behind.

Location Affordability Index: The Location Affordability Index (LAI) estimates the percentage of a family's income dedicated to the combined cost of housing and transportation in a given location. The LAI was **a joint project by the U.S. Department of Housing and Urban Development and the U.S. Department of Transportation as part of the Partnership for Sustainable Communities.** This tool can help individuals, planners, and researchers get a more complete understanding of the costs of living in a given location by accounting for variations between households, neighborhoods, and regions, all of which impact affordability.

Low-Income Household: According to HUD's Office of Community Planning and Development, a household whose income does not exceed 80 percent of the median income for the area, as determined by HUD, with adjustments for smaller or larger families. (See the following website for more information http://www.hud.gov/offices/cpd/affordablehousing/programs/home/limits/income/)

Median Family Income: This includes the median reported incomes of all family members 15 years old and over related to the householder, summed and treated as a single amount.

Median Household Income: This includes the median reported income of the householder and all other individuals 15 years old and over in the household, whether they are related to the householder or not.

Median Price: The median price of primary residences sold is the middle selling price of all primary residences when sorted in ascending order for the given time period.

Micro Hydro: Micro-hydro power is the small-scale harnessing of energy from falling water, generally producing between 5kW to 100 kW. This run-of-the-river technology does not require impoundments, which limits environmental impacts.

Moderate Income Household: According to HUD's Office of Community Planning and Development, households whose incomes are between 81 percent and 95 percent of the median income for the area, as determined by HUD, with adjustments for smaller or larger families. HUD may establish income ceilings higher or lower than 95 percent of the median for the area on the basis of HUD's findings that such variations are necessary because of prevailing levels of construction costs, fair market rents, or unusually high or low family incomes. (See the following website for more information http://www.hud.gov/offices/cpd/affordablehousing/programs/home/limits/income/)

Overlay District: A zoning district that encompasses one or more underlying zoning districts and that imposes additional requirements beyond those required for the underlying zone.

Park-and-Ride: A parking lot designed for drivers to leave their cars to use public transit or for ridesharing with another driver(s) that begins, terminates or stops at the park-and-ride facility.

Photovoltaic Panels: A device that creates electricity from the radiant energy collected from the sun.

Primary Residence (or domicile): A residence that is a permanent home to an individual.

Prime Agricultural Soils (Primary Agricultural Soils): Soil map units (from the Natural Resource Conservation Service County Soil Surveys) are Prime Farmland if they have the best combination of physical and chemical characteristics for producing food, feed fiber, forage, and oilseed crops and are also available for these uses. The present land use may be cropland, pasture, forestland, or other land uses, but not urban and built-up or water. Location, tract size, and accessibility to markets and support industries are not considered when making a Prime Farmland determination. (See Statewide Agricultural Soils)

Private Road: Roads that are privately built, owned and maintained.

Productive Forestland (i.e. productive forest soils): Forest soils which are not primary agricultural soils but which have a reasonable potential for commercial forestry and which have not been developed. In order to qualify as productive forest soils, the land containing such soils shall be of a size and location, relative to adjoining land uses, natural condition, and ownership patterns so that those soils will be capable of supporting or contributing to a commercial forestry

operation. Land use on those soils may include commercial timber harvesting and specialized forest uses, such as maple sugar or Christmas tree production. [10 V.S.A. § 6001]

Ridgelines: The highest elevation of a mountain chain or line of hills as delineated by the Ridgeline Overlay District as shown on Reading's official Zoning Map.

Riparian Buffer: A band of vegetation located next to a body of water such as a stream or pond shoreline that helps to filter pollution out of runoff and functions to improve surface water quality.

Riparian Area: An area of land and vegetation adjacent to a stream that has a direct effect on the stream. This includes woodlands, vegetation, and floodplains.

Riparian Habitat: The aquatic and terrestrial habitat adjacent to streams, lakes, estuaries, or other waterways.

Riparian Vegetation: The plants that grow rooted in the water table of a nearby wetland area such as a river, stream, reservoir, pond, spring, marsh, bog, meadow, etc.

River Corridor Protection Areas (Fluvial Erosion Hazard Areas): The area within a delineated river corridor subject to fluvial erosion that may occur as a river establishes and maintains the dimension, pattern, and profile associated with its dynamic equilibrium condition and that would represent a hazard to life, property, and infrastructure placed within the area.

Rural Character: Reading's rural character is defined by the town's working landscapes, especially farming and forestry; its commitment to protecting the natural environment; its historic buildings and settlement patterns; its commercial, recreational and social opportunities that engender a sense of community; and a lifestyle marked by relative privacy, access to nature, and a sense of independence and individualism.

Sediment: The organic material that is transported and deposited by wind and water.

Sedimentation: Deposition of sediment.

Silt: Substrate particles smaller than sand and larger than clay.

Siltation: The deposition or accumulation of fine soil particles.

State Forest Road: State Forest road (or highway) means a road used for the long-term management of lands owned by or under the control of the Department of Forests, Parks and Recreation to meet the responsibilities and purposes set forth in 10 V.S.A. § 2601 et seq. and regulations promulgated under that statute. The term "State Forest highway" includes easements and rights-of-way. A "State Forest highway" is not a "highway" or a "town highway" as defined in this title, is not a public road, and the public has no common law or statutory right of access or use of such road. A "State Forest highway" may be open for temporary, seasonal uses by the public or may be closed temporarily or seasonally for any reason at the discretion of the Agency of Natural Resources or the Department of Forests, Parks and Recreation.

State Road: State roads (or state highways) are those highways maintained exclusively by the Agency of Transportation, such as VT Routes 44 and 106.

Statewide Agricultural Soils (Soils of Statewide Significance): This is land, in addition to Prime Agricultural Soils, that is of Statewide importance for the production of food, feed, fiber, forage, and oilseed crops. In Vermont, criteria for defining and delineating Statewide Important Farmland was determined by the appropriate state agencies, working with the Natural Resources Conservation Service.

Stealth Design: Construction or siting of Telecommunication Towers such that they blend into the surrounding landscape and do not detract from scenic views.

Stormwater (runoff): Water from rain or snow that flows over the surface of the ground into water bodies (e.g. wetlands, streams, ponds).

Stream: A general term for a body of flowing water; natural water course containing water at least part of the year. In Hydrology, the term is generally applied to the water flowing in a natural channel as distinct from a canal. More generally, as in the term Stream Gaging, it is applied to the water flowing in any channel, natural or artificial.

Stream Channel: The bed where a natural stream of water runs or may run; the long narrow depression shaped by the concentrated flow of a stream and covered continuously or periodically by water.

Sustainability: A sustainable community manages its human, natural, and financial resources to meet current needs while ensuring that adequate resources are equitably available for future generations. It seeks:

- A better quality of life for the whole community without compromising the wellbeing of other communities;
- Healthy ecosystems;
- Effective governance supported by meaningful and broad-based citizen participation; and,
- Economic security. [Institute for Sustainable Communities]

SWCRPC Regional Bicycle and Walking Plan: A planning document that inventories and identifies improvements to the infrastructure that supports walking and bicycling developed by the Southern Windsor County Regional Planning Commission.

SWCRPC Regional Plan: The Southern Windsor County Regional Planning Commission's plan to guide future development in accordance with 24 V.S.A. §§4347 through 4348b.

SWCRPC Regional Transportation Plan: This document serves both as the transportation element in the Regional Plan as well as guides the Southern Windsor County Regional Planning Commission's transportation planning initiative program in coordination with VTrans.

Town Plan Survey: The process by which the Planning Commission collected public input through a questionnaire in order to guide the Town Plan update process.

Town Road: Town roads (or highways) are class 1, 2, 3, and 4 highways: (A) that the towns have authority to exclusively or cooperatively maintain; or (B) that are maintained by the towns except for scheduled surface maintenance performed by VTrans pursuant to section 306a of this title.

Transportation Affordability: Affordable transportation refers to the ability of a homeowner or renter to be able to pay for their day-to-day transportation needs based on the location of their home and their annual household income. Transportation costs are generally considered affordable when the cost does not exceed 15% of a household income.

Vermont Commercial Building Energy Standard (CBES): CBES is Vermont's Energy Code for commercial construction that was most recently revised as of October 3, 2011. Revisions took effect January 3, 2012 and apply to construction commenced on and after the date they became effective. CBES applies to all new commercial construction, including additions, alterations, renovations, and repairs.

Vermont Residential Building Energy Standard (RBES): RBES is Vermont's Energy Code for residential construction that was revised most recently on July 1, 2011. Revisions took effect October 1, 2011 and "shall apply to construction commenced on and after the date they become effective". RBES applies to all new residential construction, including additions, alterations, renovations, and repairs. Vermont law requires that the RBES be updated promptly upon the revision of the latest *International Energy Conservation Code*.

Vernal Pool: A seasonal body of standing water that typically forms in the spring from melting snow and other runoff, dries out completely in the hotter months of summer, and often refills in the autumn. Vernal pools range from broad, heavily vegetated lowland bodies to smaller, isolated upland bodies with little permanent vegetation. They are free of fish and provide important breeding habitat for many terrestrial or semiaquatic species such as frogs, salamanders, and turtles.

Viewshed: An elevated or unobstructed location, position or area that permits an unhindered panoramic vista of particular interest or pleasure or unique view to or from a particular point.

Village: A small, compact center of predominantly residential character with a core of mixed-use commercial, residential and community services (i.e. Felchville).

Watershed (River Basin): The drainage area that collects and drains runoff to a receiving body of water (e.g. Mill Brook watershed, Black River watershed).

Wetlands: means those areas of the state that are inundated by surface or ground water with a frequency sufficient to support significant vegetation or aquatic life that depend on saturated or seasonally saturated soil conditions for growth and reproduction. Such areas include but are not limited to marshes, swamps, sloughs, potholes, fens, river and lake overflows, mud flats, bogs,

and ponds, but excluding such areas as grow food or crops in connection with farming activities. See 10 V.S.A. § 902(5).

Wildlife Corridor: An area of land used by wildlife to travel from one larger block of habitat to another.

Wind Farms: An area of land with a cluster of wind turbines for driving electrical generators.

Wind Generators (Wind Turbines): A wind turbine is a rotary engine in which the kinetic energy of wind is converted into mechanical energy by causing a bladed rotor to rotate. If the mechanical energy is used directly by machinery, such as a pump or grinding stones, the machine is usually called a windmill. If the mechanical energy is then converted to electricity, the machine is called a wind generator, wind turbine, wind power unit (WPU), wind energy converter (WEC), or aerogenerator.

Appendix B

SUMMARY OF SURVEY RESULTS

Appendix C

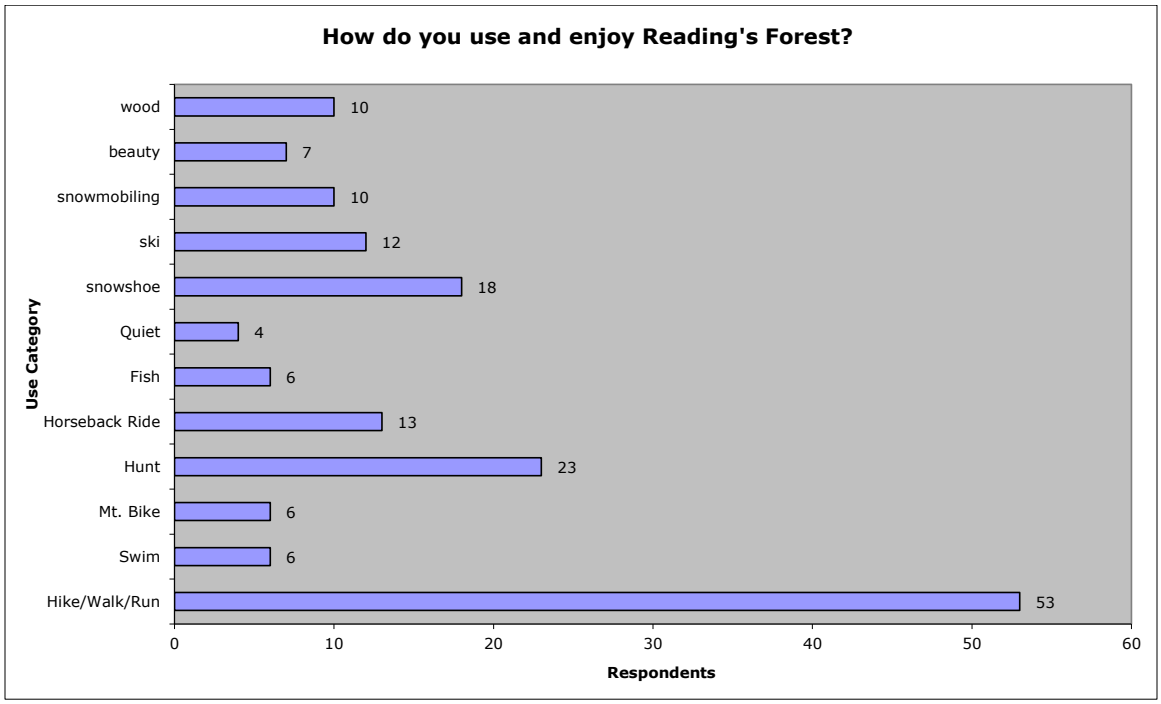
Attachment A to the Final Report
LANDOWNER SURVEY RESULTS
Reading, Vermont

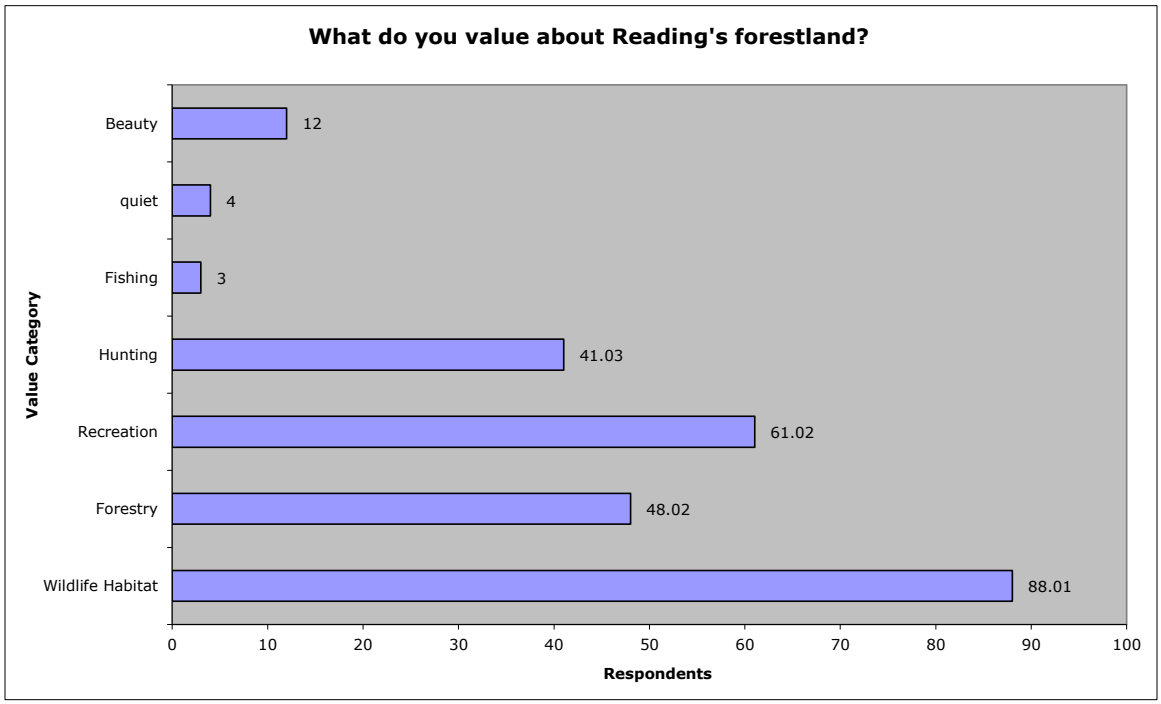
I. Original Survey Questions:

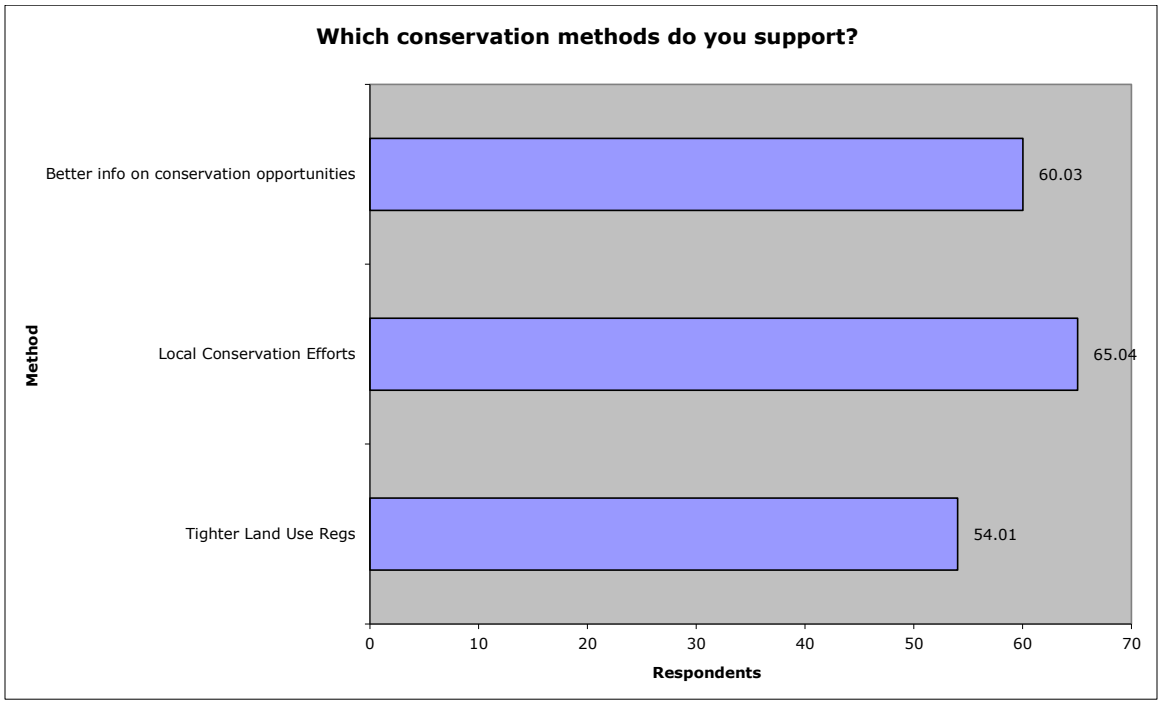
- For how many years have you owned land in Reading?
- Is Reading your primary residence?
- How do you use and enjoy Reading's forests? Please indicate if there are places in particular that are important to you.
- What do you value about Reading's forestland? For example, do you value wildlife habitat, forestry, recreation, hunting, etc.?
- Would you like more information on ways to conserve forestland that you may own?
- Which of the following methods for conserving forestland do you support? Tighter land use regulations, local conservation efforts, better information on conservation opportunities, all of these, or nothing. Please list additional ideas you may have.

II. Selected Questions, Graphed

These graphs represent the rough counts of 103 survey respondents from Reading landowners. The average respondent has owned their land for 19.7 years. 55.3% have their primary residence in Reading.


How do you use and enjoy Reading's Forest?
Use Category
wood
beauty
snowmobiling
ski
snowshoe
Quiet
Fish
Horseback Ride
Hunt
Mt. Bike
Swim
Hike/Walk/Run
10
7
10
12
18
4
6
13
23
6
6
53
0
10
20
30
40
50
60
Respondents


What do you value about Reading's forestland?
Value Category
Beauty
quiet
Fishing
Hunting
Recreation
Forestry
Wildlife Habitat
12
4
3
41.03
61.02
48.02
88.01
0
10
20
30
40
50
60
70
80
90
100
Respondents



III. Interpreting the Data

In interpreting this data, please consider the following:

1. The first four answers for what someone values about Reading's forest may be inflated because many people answered 'all.' Such an answer was only applied to the four categories that were actually listed on the survey.
2. A few people ranked their answers but most did not. For now, a .01 instead of a 1 indicates where someone has ranked a choice as positive, but did not select it as their first choice.
3. It may be helpful to crunch some of the number to understand whether responses varied depending on whether a respondent's primary residence is in Reading.

IV. Written Comments

It would be nice to have services or volunteers to help those who want to conserve to get the efforts done.

Respect for any and all trails used by motorized sport vehicles during all seasons of the year

Preserving habitat for animals, maintaining scenic views

Should be brought up at town meeting so more will be aware

I support more education on land conservation opportunities, with the ability to manage the forest under the conservation easement.

1. Deter creation of looping roads - connectors; especially between Brown school house and kittridge pasture; connections will increase pressure to split parcels and develop; 2. Minimal maintenance on wilderness roads or roads with few residents; 3. Strongly discourage expansion of power into pristine areas or low pop density areas; 4. Regulate hours and days of operation of ATVs on roads and trails

You need more room for animals instead of backyards.

Accessibility is a huge problem

Legal surveys should be required of all new purchasers so mistakes like this don't happen again. One way to conserve forestland is to not have your new neighbor (without your permission) chop down all the trees between properties right up to the house)

This survey is a good thing. People that love the land will be made more aware of its value. I hope parents will encourage their older children to come on Oct 18.

I would support most methods used to conserve forestland. I would be careful of tighter land use regulations.

Additional scrutiny of Vermont's property tax situation. The excessively high taxes are forcing out agriculture and land uses for development growth. This will eventually ruin Vermont as we like it now.

5-10 acres per building is a good idea

More local forest workshops

We currently own ~1500 acres of land in Reading- farms, residential and forest and are very interested in conservation and tighter control of development

More tax incentive to conserve forestland WITHOUT losing the option for future residential housing

Not sure about TIGHTER land use regulations as not familiar with them. Do favor tight regulations. If more property lines were trimmed, fields and woods may be healthier without rows of trees and brush, some downed, maybe diseased. It would open up an area and let sun in.

Reduce taxes on land

Try to avoid STATE regulations (vs. local)

Making people aware of what is available for them to use

Limit development, maintain open space for recreational use, and keep a minimum on lot size for homes

Clean up old cars etc. in yards

Zoning is a band-aid, which cannot be equitably applied. Landowner education and incentives for conservation is preferable.

No more regulations, there are already too much; possible tax incentives?

Would like how to maintain our own land/forest to keep it healthy as possible and to keep it as habitat to local wildlife

Most land owners are familiar with proper land management, forestry, farming, etc. and do not need the town, state or government to tell them what they can do with it

You might consider cluster housing on development projects with common land

Walking and hiking paths- nature trails

Not tighter land use regulations; no more regulations, just education about conservation

We believe our current forest and wildlife management plan is a good conservation plan. We have no current plans to subdivide or develop our lands.

I understand the concerns. Property Owners who pay taxes do not need regulations where other people tell them what they may or may not do with their own property. Current use which helps conserve forest etc. We help pay their taxes and then some of them post their land; not right.

Existing clear cutting laws should be tightened and enforced. Hidden junkyards should be removed from forested areas; ATV traffic must be prohibited from managed forests and wildlife habitat

Less hunting more wildlife; more hunting restrictions

In general I grimace at the thought of more regulation on anything. Personally I think an information or media-blitz on conservation would be most beneficial long-term. If there was an underwriting fund from the state, that would seem ideal and something that should be exploited. See original for more. Another thought for conserving forest lands locally, may fall into having certain parcels deemed part of the state park system. Not only could local residents pick up some amenities, such as hiking trails, but could also get, possibly, some assistance with the tax

rolls/land funding. Petting zoo/co-op farming might also support tourist dollars. Again, long term. Sorry for rambling, you asked.

I would LOVE to see the trails/forest area properly mapped and marked esp for horseback riding and day hikes. We seem to be losing access and that is key, along with areas to properly park to gain access; A mapped trail system would just be great! And I think it would get others to contribute to overall cost.

On Nantucket a 2% transfer fee is collected on real estate transfers and those monies are used exclusively for the preservation of open space lands. We don't know if that concept would work in a town like Reading because it might create a disincentive to purchase real estate there. It would probably have to be on a regional or statewide basis. We are committed to maintaining the integrity of our parcel (50 acres). Outreach to realtors might be helpful. They all seem to want to point out a property's potential for subdivision. They maybe most complicit in slaying the goose that lays the golden egg. Good luck in your endeavor!

Help to the landowners who do own large tracts of land to make their land as valuable to them open as they would be if they were to develop them. For example my passion is hunting. So I feel fish and game should somehow support the landowners who keep their land open for hunting. I don't believe in more regulations, as regulations lead to more and more of them and at some point the words 'free country' begin to have no meaning.

While I encourage conservation, I am opposed to increased regulation. Different people have different views of how to enjoy the land and (within reason) should be able to enjoy the land their own way. We currently live in MA (South of Boston) and it is more and more difficult to find open space to hike and walk. While my daughter loves to ride horses, my son and I ride dirt bikes. I believe we are responsible and purchase quiet exhaust systems and USFS approved spark arrestors, but we are becoming persona non grata throughout most forests. So while I want to preserve forest areas for all people, I want to ensure dirt bike/ATV riders are not excluded

Some type of tax break for those who don’t post their land

I don't think people from out of state should be able to come and buy land up, then put it in land use. The local taxpayers have to make up the difference in tax dollars.

Another thought; eliminate current use, so that we who don't own much land don't have to help pay taxes for those who do! I own less than 1/4 acre and am retired on Social Security

Loosen restrictions on current use program, so smaller parcels can participate in conjunction with adjacent parcels.

Current Use lands should be open to the public (taxpayers) since taxpayers share in the payment of those taxes for CLU lands

DO AWAY with current use! It only benefits rich out of staters. Make ALL owners conserve their lands with NO kickbacks. We do more with 3 1/4 acres than some of these big landowners.

All the open UNPOSTED lands should be given even more of a tax break.

Drop current use and let them pay all of their taxes. I'm tired of paying part of their taxes and if they post their land I can't go on it, yet I pay part of their taxes.

NO new methods; stop telling me what to do with my trees; these are my trees not yours!!!

I cherish my view of what I think is called Rist Hill. Watching the forest turn color sin fall, awaken in spring and smile in summer is a central aspect to my joy in Vermont.

I feel taxes are too high for people on fixed income. I worry about losing the place my family has owned so long.

239 acres is current use forestland, have a forester and plan for growth and cutting of all but 2 acres. The acreage is varied. The top of Keyes Mtn is ridge and rock caves. There are several good brooks and next to one the cellar hole of N. Keyes farm for which the mountain is named.

We have rebuilt the dam for our pond and as a result a pool immediately beside the road can be immediately flooded so that the fire department can fill their pumper truck when needed for a fire. He fire dept, chief and asst. chief are aware of all of this.

The section of Reading between Colby Pond and Time and Eternity has long been a quiet and serene place. Only in the last 10 years or so has it begun to grow a little. Since 1968 when our house was erected we have had visits from moose, skunks, hummingbirds, porcupine, and chipmunks. I would like to always have that much animal visitation in my 'neck of the woods.' Seclusion has its downside: complicates emergency response and may affect home security in a changing world. Good luck in this effort to protect our woodlands.

My family and myself have serious concerns about the proliferation of un-policed recreational vehicles on class 4 roads, class 3 roads and state lands. These include 3 wheeler, 4 wheelers, motorcycles and mud trucks as well as snowmobiles in the winter. The town of Reading has granted permission for these vehicles (4-wheelers) to use part of the Brown Schoolhouse Rd. The RATS ATV club has not lived up to its responsibility to police these vehicles and we find them many times out of the designated portion of the road traveling at excessive speeds. The other issue is how these vehicles are operated, excessive speed, blowing donuts, tearing up the road surface, etc. If they ARE doing this on a class 3 road what are they doing on state owned land and class 4 roads? It only takes a few individuals to do a lot of damage - MOST 4-WHEELER OWNERS ARE RESPONSIBLE OPERATORS- but who is policing these irresponsible operators - certainly not RATS. The same applies to snowmobiles- the local club (Little Ascutney) and (Windsor County) are not policing, and VAST is out of the question. How much damage to our woodlands is being done by these machines and operators?

Glad that there is a discussion about our valuable asset in Reading!

Although we do need to have more residents it could mean building on current forestland

We also feel that land needs to be accessible for purchase by middle-income families. These regulations should not be made so that only the well-off or higher income families would benefit

Our land is not posted, no hunters. Horseback riders and others are free to access it. We have a use value stewardship plan.

All the open UNPOSTED lands should be given even more of a tax break.

I value all, but I feel I shouldn't have to pay the taxes for someone else who has more acres and can afford their own taxes. We pay their taxes but many times are restricted from their property to enjoy what I used to enjoy in this town.

Appendix D

Priority Watershed Improvements

a. Stabilize embankment along 20 Mile Stream Road.
b. Replacing the steel arch under Agony Hill Road with a larger structure to better accommodate the large volumes of sediment working through the reach.
c. Replace Baileys Mills Road arch with a larger structure and design for over bank flooding.
d. Plan for ongoing sedimentation in the lower, wider valleys along Bailey Brook and Mill Brook (i.e., downstream of the confluence of Mill Brook and Bailey Brook).
e. Study flood mitigation alternatives to the “alluvial fan” area on Bailey Brook at the intersection of Baileys Mills Road and Town Farm Road that was severely damaged during Tropical Storm Irene flooding.