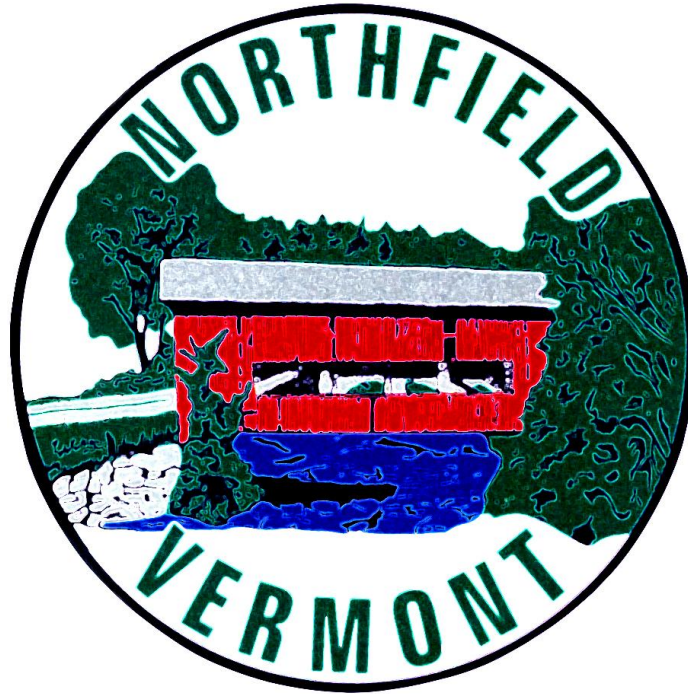


Town & Village of Northfield, Vermont Municipal Plan



**Approved by the
Northfield Planning Commission**

June 19, 2009

**Adopted by the Town of Northfield
Board of Selectmen
and the Village of Northfield**

**Board of Trustees
August 11, 2009**

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Chapter 1 Introduction

1.1 What is the Northfield Municipal Plan?

The Northfield Municipal Plan is a comprehensive long-range guide to the future of both the Town and Village of Northfield. This plan builds on the previous municipal plan adopted in 2004. The plan is intended to:

- Identify significant trends that have shaped Northfield's rich and varied history;
- Document current conditions regarding a variety of topics, including housing, transportation, the local economy, community facilities and services, and land use;
- Predict, to the extent practical, the trends that will affect change in the future; and
- Define the goals, policies, and implementation strategies for addressing community change in a way that will benefit current and future generations of Northfield residents.

1.2 Consistency with Vermont Statute

The Northfield Plan was prepared by the Northfield Joint Planning Commission under the authority of Title 24 of the Vermont Statutes Annotated, Chapter 117: The Vermont Municipal and Regional Planning and Development Act. While towns are not required to adopt a plan, those that do must include specific elements (24 VSA 117 §4382). This plan includes all required elements. This plan also addresses the twelve general state planning goals (24 VSA 117 §4302). Although the plan is consistent with these goals, the background information, goals, and policies presented throughout the document were carefully prepared to meet the unique conditions and needs of the Town of Northfield.

1.3 Regional Coordination

Due to its geography, it makes sense for Northfield to work with adjacent communities to better serve its citizens, especially Roxbury and Berlin, located along the Route 12 corridor in the Dog River Valley. Northfield cooperates with neighboring communities to provide education, emergency services, and services for families, youth, and seniors. That day-to-day cooperation is less practical with neighboring Waitsfield and Warren, which are separated by the Northfield Range to the west, and Williamstown, which is separated by Paine Mountain and the I-89 corridor to the east.

Despite physical and geographic barriers, Northfield also participates in several regional organizations to address such issues of local concern as solid waste management, transportation and transit service, and a variety of social service and economic development functions. Nothing in this plan anticipates scaling back participation in any of these regional organizations or severing existing inter-municipal arrangements with neighboring towns.

Compatibility with neighboring towns is particularly important with regard to land use, where incompatible policies could result in conflicting development activities and land uses along town boundaries. Northfield's land use plan calls for agriculture, forestry, low to moderate density residential development and very limited non-residential uses along the boundaries with Roxbury, Waitsfield, Moretown, Williamston and most of Berlin. A portion of the shared boundary with Berlin, adjacent to historic Northfield Falls, allows a greater mix of uses and higher densities befitting the traditional settlement pattern of this historic growth center. These uses and densities are not incompatible with those allowed in adjacent towns which have

adopted zoning, although Williamstown and Roxbury have not implemented their respective land use plans through development regulations.

In addition to land use, a brief review of neighboring municipal plans does not reveal any notable incompatibility of plan goals or policies. Likewise, no areas of incompatibility between this plan and the Central Vermont Regional Plan have been identified. Thus, it is the position of Northfield that this plan is compatible with all of the adopted plans of neighboring communities and the region.

1.4 Purpose of Town Plan

Simply stated, the purpose of a town plan is to provide a vision for the town and offer strategies for achieving that vision. It provides a useful reference for local and state officials when making decisions affecting the community, and may be used to inform anyone interested in the town of its history, resources, challenges and policies. Important benefits and/or uses of the plan include:

Community Assessment For Northfield to accommodate growth and change, local officials and residents should be aware of the town's strengths and weaknesses and anticipate the factors that will influence future conditions. The process of preparing a town plan provides a structured process for assessing the community's past, taking stock of current conditions, and predicting future trends and influences. This process of community assessment and debate regarding the town's future can be as important as the plan itself.

Land Use Planning and Development Regulation Northfield first adopted zoning regulations to implement a community land use plan in 1977. These regulations served the town during two decades of rapid growth. The regulations were updated in 1986 and then revised in 1999, to correct deficiencies and address development pressure. The regulations were again revised in 2006 to comply with changes in state statute. Through these several revisions, the zoning district standards that have been in effect for decades have been left largely intact. As of 2009, this continues to be true. This plan shall serve as the blueprint for a comprehensive rewriting of the municipal zoning regulations in 2009/2010.

Public Facilities and Services The town plan is useful for identifying desired community facilities and services, projecting future demand for those facilities and services, and setting priorities for meeting those demands in a cost effective manner. In many respects, this is among the most important functions of a town plan.

Open Space & Natural Resource Protection In the future, Northfield will be presented with opportunities to help set aside open space for future generations. The town plan can help establish the community's conservation priorities and identify those properties, features and/or resources that are most deserving of protection.

Economic Development Most past economic development initiatives have been the responsibility of private businesses. The town can support economic development, however, through the provision of facilities and services and by creating a regulatory climate that encourages different business activities in appropriate locations. The town plan is an important mechanism for addressing how local government, private businesses and economic development agencies and associations can coordinate their efforts to foster a healthy local economy.

State Development Regulations Many state regulations, most importantly Act 250, are administered in a manner which gives some credence to local development policies.

One of Act 250's ten review criterion requires that new development be compatible with a locally adopted municipal plan. Northfield's Select board and Planning Commission both have "party status" allowing for their involvement during Act 250 proceedings. The policies set forth in this plan address a wide range of topics, and are designed to serve as the town's unambiguous position during the Act 250 and other review processes.

State, Federal and Private Policies & Programs State development regulations are not the only forum in which it is important for the town to have clearly articulated policies. The decisions and actions of state and federal agencies and non-profit organizations can affect the town's future well-being in areas such as transportation improvements, environmental protection, land conservation, economic development, and. In many instances, public agencies and private organizations seek the guidance of local governments to ensure that their activities are compatible with the community's values and vision. This is especially true regarding increasingly competitive grant programs, where conformance with a local plan is often an important eligibility requirement.

Define Balance Between Conflicting Interests & Articulate a Community Vision Northfield's population reflects a diversity of opinions and attitudes. The planning process can be a vehicle for forging consensus, identifying issues in which consensus is not possible, and setting forth a process for resolving future conflict. The result of the planning process could be a future vision that reflects, to the extent possible, the hopes and aspirations of the community.

1.5 Organization and Format

This plan includes eleven chapters. The first chapter describes the plan's purpose, the importance of public participation in the planning process, and regional coordination and compatibility of this plan with the plans of neighboring communities. Chapter 1 also includes a brief town history provided by the Northfield Historical Society.

Chapters 2 through 10 address a variety of topics, including the town's population, housing, transportation, natural and cultural resources, and land use. These chapters include background information related to each topic and, where appropriate, projections or anticipated changes and planning considerations. The end of each chapter sets forth related goals, policies and specific tasks and strategies. Chapter 11 covers Plan implementation.

1.6 Planning Process

Northfield residents value their ability to participate in the process of making local decisions. In developing the 2009 plan, the Planning Commission focused on gathering public input to inform the plan. They invited over a hundred stakeholders from municipal departments, local boards, committees, and non-profit organizations to provide their input on the plan. In addition, draft chapters of the plan were posted on the municipal web site for public review.

With funds from a Municipal Planning Grant from the Vermont Department of Housing and Community Affairs, a consultant was retained by the Commission to plan and coordinate public involvement in the planning process. Five public forums were held to discuss key topics, such as housing, land use, and economic development. With the help of the consultant and municipal staff, a survey was distributed with the Town Report and collected at Town Meeting Day, as well as being available via the Survey Monkey internet survey service. Over 200 responses were received. The information gathered in this process has been incorporated in this plan.

A Brief History of Northfield, by the Northfield Historical Society

From 1785 through the 1820s, largely Yankees from Connecticut, Massachusetts, and the older Vermont towns settled Northfield. Next to arrive were the Irish, attracted in the 1840's by jobs on the railroad. The Welsh arrived after the Irish to work in the slate quarries in the 1850's and 1860's. Stonework also brought the next wave. Starting about 1890, Italians, Spaniards, and Scots joined the workforce in the granite sheds. From the 1880's onward, Canadians of French descent came seeking opportunity, many buying up hill farms abandoned in the decades after the Civil War.

The years from 1785 to 1825 saw the development of Northfield's four villages. The first settlement was on East Hill (now Mill Hill), close by Elijah Paine's grist and sawmills. As the population grew, boundaries crept up the hill and northward along Route 12. Clusters of houses became villages, each with its own personality and name: South Village, Center Village, Factory Village, and the Falls.

First to have a distinct identity was South Village, which had numerous small businesses and manufacturing operations through the nineteenth century. Next was Center Village, where the first post office, town clerk's office, and churches were established, and which for many years was the social and political center of town. After the Center came Factory Village (the present Village of Northfield) named for the woolen mill located there. Last to develop was Northfield Falls, and by the late 1820's it, too, was a thriving community.

With the arrival of the railroad in the 1840's, Factory Village and Depot Square increasingly became the hub of local activity. Residents there began to demand lighted streets, sidewalks, fire and police protection, and they then petitioned the legislature to establish a separate Village of Northfield. The Village of Northfield was incorporated November 14, 1855.

Over the next fifty years, village residents voted taxes on themselves for a variety of services. Sidewalks were laid down, the water department was established and the first electric plant was built (both in 1895), and the first sewer lines were laid (1901-1904). Around 1900 the police department was set up, and the two independent fire companies, which existed from the 1860's, came under village control.

The price of such amenities was high; consequently, as they were increasingly needed outside the village, police, and fire services were taken over by the town. The town and village highway departments were supported by taxes levied separately on the grand lists of the village and town.

Once settlements were established, people turned their attention to making a living. Of necessity, almost everyone was a farmer first, and most lived by barter (goods and services were paid for with other goods and services). Eventually people needed hard cash, and it was this quest for individual and collective economic security that has been the paramount concern in Northfield for two centuries.

Until about 1814, residents made potash on their farms and sent it to mills in America and abroad which used it for everything from finishing wool cloth to making glass. About 1812, as the demand for potash was waning, Elijah Paine built a huge woolen mill on the site of the now closed Cetrangolo Finishing works (which closed in 1999). Paine's woolen mill employed between 175 and 200 workers and was for years the town's largest employer.

When wool prices declined in the 1840's, Elijah Paine's son Charles came to the rescue. As President of the Vermont Central Railroad, Charles Paine pushed the line from Windsor, Vermont to Burlington, finishing construction on the last day of 1849, and locating the railroad's headquarters in Northfield. For fifteen years the Vermont Central Railroad meant prestige for Northfield and prosperity for its citizens – hundreds worked for the line.

In 1852, Paine lost control of his railroad. Over the next decade the new owners gradually moved operations to St. Albans. John Gregory Smith, the new president, said he would “make the grass grow in the streets of Northfield.” He very nearly succeeded. The town’s population, one of the largest in Vermont at the time, dropped precipitously and over fifty houses stood vacant. It took 25 years to recover from the loss.

Slate quarrying and finishing, which started early in the nineteenth century, provided some respite. In the 1860’s and 1870’s some two hundred men worked for the slate companies, but by the 1880’s this industry too was in decline.

The next savior was granite. In 1889 investors built a spur line and a small finishing shed on railroad land and arranged to have granite brought down from the Barre quarries. Several more sheds were eventually constructed, and by the outbreak of World War I, over 525 people were employed in the sheds.

Times changed, and by 1954 only the Rock of Ages plant was left, and that too was closed when the head office decided it was too expensive to ship the rough stone here. In 1999 Cetrangolo Finishing Works, founded in 1955, was the last to close. As of August 2000, the Cetrangolo Finishing Works building had been demolished, and the site remains vacant.

In the end, economic rejuvenation came from what at first might have seemed an unpromising source. Late in 1886, the faculty and student body of Norwich University arrived in town. Their arrival followed acceptance by Norwich trustees of a bid by a group of citizens to have the college relocated here. It is doubtful that anyone seeing the four teachers and fourteen students arrive imagined that the college would become the town’s largest employer.

Beside the large industries, small-scale manufacturing operations and retail businesses of many kinds flourished here in the nineteenth and early twentieth centuries. This diversity was common in Vermont, and Northfield was no exception. Collectively these stores and manufacturers gave employment to many, and economic health to the community for decades.

The Great Depression hastened the end of many businesses. Henry Ford and his competitors made the demise of other businesses certain. Mass production of the automobile and a revived national economy after 1945 put Vermonters on wheels and took them out of town to work and shop. The importance of the automobile as a bringer of change cannot be overstated. In Northfield, as elsewhere, it meant workers no longer had to depend on local businesses for jobs and shopping opportunities; they could drive anywhere employment was available and goods were for sale.

As manufacturing jobs declined, the importance of Norwich University increased. In the 1950 timeframe, Norwich, Rock of Ages, and the Nantanna textile mill each employed approximately 140 people. By 1963, Rock of Ages, in Northfield, went out of business. Though the college has seen ups and downs over the past 125 years, its presence has been an economic force for the community and a social and cultural life Northfield probably would not otherwise have seen.

Since World War II, population growth has been slow but steady. The town has seen none of the large-scale tourism that has brought mixed blessings to other Vermont towns. While no large industry has come to town, a number of small businesses have sprung up. Slightly more than half of the Northfield labor force worked out of town. Over two centuries, Northfield evolved from farming to manufacturing to a mix of small businesses and a college town economy.

McIntire, Julia. (1981 Fall). *History of Northfield*. Central Vermont Views, 3, No. 1, 28-33.

McIntire, J. W., and Cleveland, R.L. (1985). *Picture Northfield: A Photographic Study*.

The Northfield Town Committee (1974). *Green Mountain Heritage: The Chronicle of Northfield, Vermont*.

Chapter 2 Natural & Cultural Resources

2.1 Overview

Northfield's physical character and identity, its unique sense of place, is defined by both its natural setting and its built environment. Local topography and natural features helped shape historic patterns of development, which in turn offer a framework for future growth. Many of Northfield's most significant natural and historic features remain remarkably intact, and contribute much to the attractiveness of the community and to the overall quality of life in town.

Many American communities have been experiencing tremendous growth, and losing their sense of identity in the process. Rapid development can adversely impact the natural environment, and can be inconsistent with the historic character of the built environment.

Northfield has not felt the intense development pressure that has been prevalent in more metropolitan areas. Giving careful consideration to the town's natural and historic features, and the potential impacts of development on these resources, will continue to be critical to protecting environmental quality and community identity, and to preserving that which makes Northfield a special place to live, work and visit.

2.2 Topography & Drainage

Northfield lies in the heart of the Dog River valley, defined by the Northfield Range to the west, and the Irish Hill ridge, including Paine Mountain, to the east. The Dog River, fed locally by a number of tributaries within the local drainage area, flows northward into the Winooski, west of Montpelier, and eventually into Lake Champlain. Elevations in town range from around 650 feet where the Dog River crosses into Berlin, to over 2500 feet along the town's western border in the Northfield Range. Prominent peaks to the east include Paine Mountain (2411 ft.), Turkey Hill (1888 ft.), and Shaw Mountain (1820 ft.). Around 62 acres of land in the Northfield Range are located above 2,500 feet, and are subject to Act 250 review if developed.

River valleys provided natural transportation routes for prehistoric populations, and early settlers. The "Paine Turnpike" (now called Berlin Pond Road) connecting Brookfield and Montpelier, was first constructed up the Dog River valley in 1799, opening up the town to settlement and trade with the outside world. The Vermont Central Railroad, completed through the valley in 1847, established Northfield Village as an important regional commercial and industrial center.

Historically, settlement was concentrated in the narrow confines of the valley floor in locations where the power of the Dog River and its tributaries could be easily harnessed. Northfield's four historic villages – South Village, Center Village, Factory (Northfield) Village, and Northfield Falls – all developed first as mill sites. Some of these areas lie within the flood plain of the Dog River and as such have been subject to periodic flooding over the years.

As farms extended into the surrounding hills, much of the forests were cleared for agriculture and potash production, the town's earliest industry. Upland areas supported subsistence farming, and for a time commercial sheep and dairy farms. The clearing of steeper slopes, however, also resulted in accelerated storm water runoff and soil erosion, which depleted local soils.

With the abandonment of the hill farms over the last century, most of the town's uplands have reverted to forests. These areas now support logging operations, wildlife populations, and recreational activities such as hunting and hiking, while providing a highly visible scenic

backdrop to the valley below. They are also increasingly attractive for low-density residential development, and high elevation uses such as telecommunications towers and wind generation facilities. If poorly sited and developed, such uses can adversely impact upland forest watersheds that provide surface and groundwater recharge, timber stands, critical wildlife habitat, and scenic views.

Recent changes in the state's regulations now allow septic systems to be built on slopes up to 20%, opening up more upland areas to development (see map). Site preparation and development on steeper slopes (15% or more) should be carefully managed according to accepted management practices to minimize runoff and soil erosion. Development on slopes in excess of 25% (estimated at 6,570 acres or 21% of the town's total land area) should be avoided.

Development in areas that are highly visible from public vantage points also should be located and designed to minimize visual impacts: locate structures below prominent peaks and ridgelines, minimize site clearing, conceal structures from view, and use colors and materials that blend into the surroundings.

Figure 2.1 Slope Development Suitability

<u>Slope</u>	<u>Recommended Management</u>
0-3%	Suitable for development, may require drainage improvements
3-8%	Most desirable for development, having the least restrictions
8-15%	Suitable for low-density development with consideration given to erosion control, runoff, and septic design
15-25%	Unsuitable for most development and septic systems; runoff and erosion problems likely; any construction should be carefully managed
25%+	All construction should be avoided; careful land management is required.

Source: USDA Natural Resources Conservation Service.

The citizens of Northfield recognize the value of keeping undeveloped land available for a variety of uses. River valley land is good for bicycle and pedestrian use; more remote areas of town provide access to scenic vistas and hiking and mountain biking. New development needs to consider the multiple values of each area of the town. In addition to valuing the recreation potential of open land, more than two thirds of citizens responding to the 2009 planning survey expressed support for expanded protection of wildlife habitat.

2.3 Natural Resources

Northfield has a wealth of natural resources that contribute to a healthy and diverse environment, and support local economic and community development. The protection and sustainable use of the town's natural resource base is necessary to maintain the quality of life for existing and future Northfield residents. Many of the resources noted here are shown on accompanying maps.

Earth Resources

Geologic Features & Hazards. Northfield's many quarries supported a thriving slate industry in the mid- to late 1800s, rescuing the community from economic decline following the relocation of the railroad operations. These quarries, which extend over several acres, are no longer operational. Other rock and mineral deposits are found locally, though not in commercial quantities. Avid recreational panners may find small amounts of placer gold in local streams.

Geologic hazards are minimal, though isolated rock falls and slides are common on steep or unstable slopes. Regional earthquakes, typically centered in the Adirondack Mountains or southern Quebec, occur with enough frequency and strength that public infrastructure,

buildings, and utility systems should incorporate basic seismic standards for earthquake resistance.

Ridgelines. Northfield is enclosed by two prominent ridgelines. These higher altitude lands provide unique wildlife and flora habitat; they also define the character of the land. Recent volatility in energy cost has raised the potential for these lands to be considered for wind energy generation. The public is interested in exploring the potential for wind power, while maintaining the character of the ridgelines and protecting wildlife habitat.

Sand & Gravel. Sand and gravel deposits, located mainly along the Dog River and its tributaries, supply commercial extraction operations. Based on soil surveys, it is estimated that there are nearly 4,500 acres of potential sand and gravel, though not all may be suitable for extraction. Such operations supply much needed sand and gravel for road maintenance and construction; but if not properly developed and managed, can result in unstable slopes and slides, and adversely affect surface and groundwater quality, aquatic life, local roads, and neighboring properties. Phasing to limit exposed areas, good management practices, and site reclamation can reduce some of these impacts.

Agricultural Soils. Farmland still in production locally is generally confined to the best agricultural soils in town. Northfield has around 4,500 acres of mapped “primary agricultural soils,” including soils of federal and statewide importance. These soils are considered by the state to be a critical natural resource for local agriculture and food production, and as such are considered for protection in Act 250 review. In Northfield, they are given some protection as the basis for the Secondary Agricultural zoning district, which has limited types of development allowed, and a five-acre minimum lot size.

Water Resources

Groundwater. Upland areas, and glacial sand and gravel deposits, serve as important aquifer recharge areas that replenish local groundwater supplies, including many private wells and the town’s well field. Most recharge areas have yet to be mapped, but the state has delineated “source protection areas” (also known as wellhead protection areas) to protect public water supplies.

The delineated source protection area for the village water supply encompasses 111 acres. Potential sources of contamination identified by the Northfield Water Department include road salt, accidental spills, failed septic systems, fertilizer, runoff, pesticides, herbicides, and chemicals. The Department has developed a source protection plan that was approved by the Agency of Natural Resources Water Supply Division in 2002 that delineates activities that should/should not occur within the Source Protection Area for the village water supply. Extending sewer service to this area would eliminate potential contamination from failed septic systems. Additional protection could be implemented through local land use regulations.

Surface Waters. Northfield has approximately 100 acres of mapped surface waters. Prominent surface waters in town include the Dog River and its tributaries (Cox Brook, Union Brook, Stony Brook, Felchner Brook, Bull Run, Sunny Brook and Robinson Brook) and small upland ponds, including Felchner Pond, and a number of beaver ponds. Surface waters also include upland headwaters that feed local brooks and ponds. Although these often do not show up on maps, headwaters are nevertheless important to sustain local water supplies and maintain water quality. A surface water protection area extending along the Irish Hill ridge to Paine Mountain also has been delineated by the state to protect Berlin Pond (the capital city’s drinking water supply) and the headwaters of the Dog River.

Historically, the Dog River suffered the effects of damming, siltation, and direct discharge of industrial and human waste. Today it is one of Vermont's top wild trout streams, supporting natural populations of brown, rainbow, and brook trout. The river and its major tributaries are important cold-water fisheries that are particularly sensitive to changes in stream flow, temperature, and sediment loads. The Dog is also rated highly for its scenic qualities and for recreational boating below the Nantanna Mill dam. Northfield Falls on the Dog River, which once supplied power for mills in Northfield Falls, is a locally significant, scenic cascade.

In 2008, the Town of Northfield and the Central Vermont Regional Planning Commission completed a Phase 1 Stream Geomorphic Assessment of the Dog River Watershed, and the Town went on to contract with Bear Creek Environmental to conduct Phase 2 assessment work. The report from this project, *Dog River: River Corridor Plan* (Bear Creek Environmental, 2009) includes recommendations for improved watershed management, and identifies specific opportunities to improve water quality in priority river reaches.

Surface water quality is generally good. Most waters in town are rated "Class B" by the state, indicating that they will support local fisheries and are generally suitable for recreation, and drinking with treatment. Uses are more limited within the designated "mixing zone" on the Dog River, extending downstream from the wastewater treatment plant outflow. Water quality in this zone and downstream from the wastewater treatment plant generally, should have been substantially improved by the major treatment plant upgrade in 2002.

Other threats to water quality include failed septic systems, storm water runoff, encroaching development, explosive growth in invasive species of plants, and sedimentation from construction sites, roads, and other impervious surfaces. These can be reduced through the use of surface water setbacks, undisturbed buffer zones, and the application of best management practices for storm water management and erosion control.

As with ridgelines, Northfield's rivers have some potential for small-scale electricity generation. It may be possible to develop hydropower facilities without impairing water quality. There is interest in exploring this possibility.

Environmentally Sensitive Areas

Environmentally sensitive areas are distinct areas that serve important ecological and environmental functions, and are particularly vulnerable to the adverse impacts of development or mismanagement. Development of these areas should be avoided, or carefully managed where encroachments are unavoidable.

Wetlands. Wetlands, once thought to be mosquito-ridden wastelands, are now recognized to serve a number of important ecological and environmental functions, including flood management, and ground and surface water recharge and filtration. They also provide important wildlife habitat, and contribute to the diversity and beauty of the natural landscape.

The loss of wetlands through draining and development is an issue of state and national concern; significant wetlands are now protected under both state and federal regulations. Wetlands regulated by the state are identified on the Vermont Significant Wetland Inventory (VSWI) map for the town. There are no extensive mapped wetland areas in Northfield, however many smaller wetlands are found throughout town, along the Dog River and its tributaries, and in headwater areas. Not all wetlands appear on this map, however. Site-specific information and delineations may be required for the review of impacts associated with a particular development. Protection is typically provided through the designation of buffer areas at least fifty feet in width, within which very few activities are allowed.

The town is required, under state and local regulations, to notify the state wetlands office whenever development is proposed within or adjacent to mapped wetland areas. There are a few cases on record of local wetlands being filled in violation of these regulations. The town may also opt, through local regulations, to protect wetlands that do not trigger state review.

Floodplains. Local flood hazard areas, including those areas along the Dog River and its tributaries, which have a one percent chance of flooding, are defined on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM). Property owners within mapped flood hazard areas are eligible to purchase flood insurance through the National Flood Insurance Program (NFIP) as long as the town regulates development within these areas as required under state and federal programs. The town is also required to submit all zoning applications for development in the flood hazard areas to the state for review prior to local approval.

Flooding, including flash flooding after major storms, may also occur on land outside of mapped flood plains, including upland streams. The state has recently created a map of Fluvial Erosion Hazard areas to help the town identify those areas at risk of flood damage that may not be included on the FEMA FIRM. Stream setbacks, buffers, and storm water management requirements under local regulations can help reduce flood hazards in both FIRM and FEH areas.

Wildlife Habitat. Habitat loss, over-hunting, and environmental pollution led to the extinction of a number of wildlife species locally and statewide, including deer, turkey and beaver populations. Reforestation has allowed for the re-establishment of core and seasonal habitat areas, and connecting (travel) corridors along ridgelines, streams and wetlands, which support diverse wildlife populations, including both game and non-game species. Habitat fragmentation and loss, however, from land subdivision, clearing and human use, continue to threaten wildlife populations in the path of development. Critical wildlife habitat areas in town identified to date (see map), and considered in state regulatory proceedings include:

- Several large deer wintering areas (more than 5,000 acres), also referred to as “deer yards,” which are critical to the winter survival of local deer populations;
- Seasonal bear habitat (roughly 4,800 acres) located mostly in remote upland areas, including the Northfield Range; and
- A rare plant community (a species of fern) on the slopes of Paine Mountain.

Many other important wildlife areas may exist in town, but have not yet been identified or mapped. Landowners can work with the Vermont Department of Fish and Wildlife to better manage the habitat on their property. A more broad-based inventory could be undertaken locally through Keeping Track®, a Vermont-based nonprofit that provides community training in wildlife identification and tracking. Wildlife habitat protection could also be incorporated under local subdivision and zoning regulations, especially in those areas identified as important or sensitive.

2.4 Cultural Resources

Northfield residents have long taken an interest in the town’s historic development. The Northfield Historical Society was established to preserve and interpret local history for present and future generations of Northfield residents. The Society maintains a collection of materials and artifacts in its new home, the historic Paine House adjacent to the public library.

Traditional Settlement Patterns

Northfield’s traditional settlement pattern of clustered villages linked by an integrated transportation network, and surrounded by an open river valley and forested uplands has been well-established since the nineteenth century. Northfield’s villages were developed at a scale

and density that is pedestrian-friendly, with clearly defined streetscapes and public spaces, prominent public buildings, and a variety of goods, services and employment opportunities, all within easy walking distance of residential neighborhoods.

As noted in the town history, the introduction of the automobile significantly altered the town's character, yet this traditional pattern of development remains largely intact. Northfield has yet to suffer the effects of large-scale, auto-oriented commercial strip development and low density sprawl that are plaguing other Vermont communities. Issues associated with traffic and parking, and the effects these have on residential neighborhoods, are more common locally. Through the use of local subdivision and zoning regulations, and carefully delineated water and sewer service areas, Northfield can promote types and patterns of growth that are consistent with its traditional character, and help preserve its local identity.

Historic Sites & Structures

Northfield has a wealth of historic resources that includes hundreds of documented historic sites and structures, and many others that have yet to be identified or catalogued. A few of Northfield's most historic structures, including its five covered bridges, the Vermont Central Railroad Station, the Old Mill Building and the Mayo Building, are listed on the National Register of Historic Places.

A more comprehensive historic sites and structures survey for Northfield, conducted by the state in 1980-81, identified six separate historic districts, with 342 contributing structures (Table 2.2), and 79 other historic structures located throughout town. A structure generally must be at least fifty years old, and retain its historic integrity, to be eligible for listing on state and national registers. Most structures identified to date are historic homes, but also included several school houses, many of Northfield's public buildings, the Vermont Central Railroad engine house, the Nantanna Woolen Mills complex, the Brown Public Library, and the Vine Street and Town Highway 57 bridges. At the time the Northfield survey was conducted, many of these structures were in good to excellent condition.

Not included on the initial survey were potential archaeological sites, including quarry and mill sites along the Dog River; town cemeteries which are an important historic resource, and other types of historic structures such as barns and outbuildings, that have yet to be identified or surveyed, but may also contribute to the town's cultural heritage.

Northfield's six historic districts, and many of the historic structures listed on the state inventory may be eligible for listing on the National Register

National Register of Historic Places

Lower Cox Brook Covered Bridge [1974]
Northfield Falls Covered Bridge [1974]
Slaughterhouse Covered Bridge [1974]
Stony Brook Covered Bridge [1974]
Upper Cox Brook Covered Bridge [1974]
Central Vermont Railway Depot [1975]
Old Red Mill [1977]
Mayo Building [1983]

Northfield Historic Cemeteries

Public Cemeteries

Aldrich (West Hill)
Elmwood (Cemetery Street)
Four Corners (Devils Washbowl)
Loomis (Poor's Road)
Mount Hope (South Main Street)]
Richardson (Norwich University)
Robinson (Robinson Road)

Private Cemeteries

Calvary Catholic Cemetery (Doyon Road)
Old Catholic Cemetery (King Street)
Northfield Falls (Northfield Falls)
Norwich Cemetery (Norwich University)

of Historic Places, and should be considered for nomination. In addition to conferring state and national recognition of historic significance, listed properties are eligible for limited state and federal financial assistance, including historic preservation grants and rehabilitation investment tax credits.

Listing, however, offers very limited protection from demolition or alteration; potential impacts of development on listed properties are considered only for projects that are subject to federal or state review (e.g., Act 250). Act 250 may also trigger an initial site assessment to determine if buried archaeological resources are present. The town could consider adopting historic and/or design review regulations under zoning to further protect the character of individual historic landmarks or designated historic districts.

Figure 2.2 Northfield Historic Districts

District	Description	Structures	Condition
Northfield Falls Village	Mid-19 th century mill village, first settled in the 1820s; dominated by Greek Revival architecture	40 contributing structures; 13 other structures	20% excellent 40% good 30% fair 10% poor
Water-Pleasant Street	Historic residential district dating from 1840s; 1890s stoneworker housing	54 contributing structures 34 other structures	15% excellent 70% good 10% fair 5% poor
Vine Street	Historic residential district developed between 1840 and 1920; houses represent a range of architectural styles	97 contributing structures 36 other structures	5% excellent 40% good 35% fair 20% poor
Crescent Street	Historic residential district; mostly Greek Revival architecture; face common and Norwich University	11 contributing structures 1 other structure	20% excellent 40% good 40% fair 0% poor
Depot Square	Historic commercial district linking Main Street to the railway; anchored by two 19 th century landmarks– the VCR Rail Station and the United Church; 20 th century infill	12 contributing structures Depot Square 4 other buildings	10% excellent 70% good 20% fair 0% poor
South Main-Central Street	Historic residential district, reflecting prosperity associated with railroad, granite industry; Greek and Colonial Revival	128 contributing structures 16 other structures	50% excellent 40% good 5% fair 5% poor
Source: <i>Vermont Historic Sites & Structures Survey, Northfield, VT</i> , Division for Historic Preservation, 1980-81.			

Additional state assistance is available for historic properties within designated downtowns under Vermont's Downtown Program (see Chapter 5), and for preservation projects conducted by "Certified Local Governments (CLGs)." Northfield could apply for CLG status, which extends federal and state preservation partnerships to the local level. CLGs are eligible for additional federal and state preservation grants and technical assistance, and may participate directly in the nomination of historic properties for listing.

Northfield maintains the hallmarks of the classic New England village: the historic nature of some of its buildings, the concentration of activity and structures in the Villages, and the presence of Norwich University. These features could be used to more aggressively market Northfield as a tourist attraction. During public forums in 2009, participants repeatedly raised the possibility of developing the municipality as a travel destination.

2.5 Natural & Cultural Resource Goals, Policies & Tasks

Goals

To identify, protect, and preserve important natural and historic features of Northfield's landscape and built environment, which help define the community's unique identity and sense of place; and

To maintain and improve the quality of Northfield's air, water, wildlife, and land resources.

Policies

Generally, development should be regulated to achieve the goals above. Specifically, the following policies regarding sensitive areas, water quality protection, and historic preservation should be implemented.

1. Sensitive areas

- a. Sited to avoid prominent ridgelines, upland areas, and hilltops, as viewed from public vantage points;
- b. Carefully sited, designed and managed in upland areas (e.g., over 1800 ft) to avoid steep slopes and shallow soils, and adverse impacts to headwaters and groundwater recharge areas;
- c. Sited and carefully managed to avoid the fragmentation and degradation of critical wildlife habitat, including core habitat areas and connecting corridors;
- d. Sited to avoid, to the extent feasible, primary agricultural soils, which should be protected for current and future agricultural use;

2. Water quality protection

- a. Carefully managed on slopes of 15-25% to minimize surface water runoff and erosion, and prohibited on slopes of 25% or more;
- b. Sited with adequate riparian buffers as needed to protect water quality, critical riparian habitat, and cold water fisheries (e.g., 50 foot minimum);
- c. Sited to avoid and/or minimize impacts to designated source and surface water protection areas that supply community or municipal water systems;

- d. Sited to avoid flood hazard areas to the extent feasible, or where necessary, be designed to minimize flood damage and the loss of life and property;
- 3. Historic preservation:
 - e. Sited and designed to be consistent with Northfield's historic settlement pattern, including traditional densities and scales of development, local street networks, and streetscapes;
 - f. Compatible with Northfield's historic architectural styles;
 - g. Designed to minimize adverse impacts to Northfield's historic sites, structures and outdoor recreation areas.

Tasks

1. Continue to inventory, catalogue and map Northfield's natural features. Establish priorities for protection of unique or valuable natural features, and develop an overlay map of those in order to identify areas that would benefit from special management or protection. [Conservation Commission, Planning Commission]
2. Update local land use regulations as needed to adequately protect Northfield's natural resources. Consider the adoption of overlay districts to protect sensitive resources. [Planning Commission, Selectmen, Trustees].
3. Develop a policy on the use of ridgelines for the location of wind energy facilities. Review existing data on wind potential and map the high potential areas with an overlay of sensitive habitats and prominent viewsheds. [Planning Commission, Select Board, Board of Trustees]
4. Explore ways to strengthen implementation of existing land management plans on parcels enrolled in the state's current use valuation program. [Planning Commission, Select Board, Board of Trustees]
5. Work with Norwich University to ensure that long-term planning for its open land is consistent with the goals and policies of the Municipal Plan. [Planning Commission, Zoning Board of Adjustment]
6. Consider developing a water quality protection overlay zone, or other zoning tool, to improve riparian buffer protection, well field protection, and fluvial erosion hazard protection. [Planning Commission, Conservation Commission]
7. Extend sewer service south along Route 12A to protect the community water supply. [Select Board, Board of Trustees]
8. Review the findings of the Dog River: River Corridor Plan (Bear Creek Environmental, 2009) report, and consider implementation of recommendations regarding Fluvial Erosion Hazard Zone development and storm water management. [Planning Commission, Conservation Commission]
9. Support the Conservation Commission as it seeks to develop river restoration and water quality protection projects, based on the findings of the geomorphic assessment. [Planning Commission, Select Board, Board of Trustees]
10. Consider nominating one or more of Northfield's Historic Districts to the National Register of Historic Places. [Historical Society]

11. Consider application for Downtown and/or Certified Local Government designation to access additional resources and financial assistance for historic preservation. [Selectmen, Trustees]
12. Explore ways to market Northfield as a destination for travelers interested in historic resources. Create an inventory of events that could be used for marketing. [Historical Society, Municipal Manager]

Chapter 3 Population

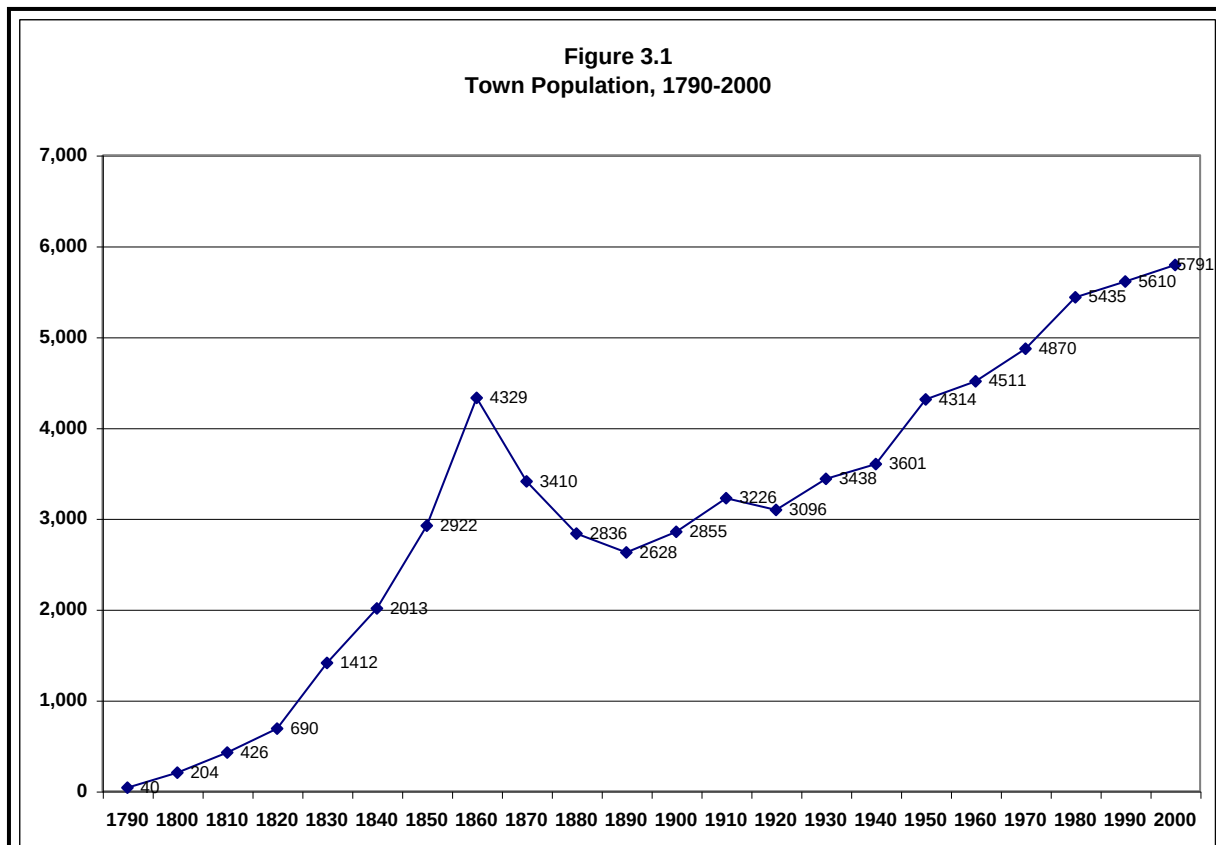
3.1 Overview

The composition and fluctuation of a community's population can have a significant influence on a number of issues of public concern. Generally, rapid population change can stress community services, result in environmental degradation, create or limit economic opportunity, and/or impact housing conditions and values. The presence of a large age cohort (e.g., a large retirement or student population) can place special demands on community services. This chapter examines population trends and characteristics in Northfield, and identifies those likely to affect future conditions in the community.

Northfield faces growth in the older segments of the population, and a diminishing youth population. This trend, seen across much of Vermont, will affect many aspects of the community. Housing demand may change as residents want smaller homes located closer to Village services. The aging of the population is also affecting regional employment trends, and may change regional and state funding for and provision of public education.

3.2 Historical Trends

Since its settlement in 1785, Northfield's population change varied from that of most Vermont communities (see Figure 3.1). The town's 19th century population peaked around 1860, at which time Northfield was the state's fourth most populous community. The local decline of the railroad, which began in the 1850s, the American Civil War, and subsequent westward



migration, preceded a period of population decline. For much of Vermont, that period of decline lasted through the 1950s. The trend reversed itself much earlier in Northfield, however, which experienced relatively steady population growth since 1890.

3.3 Recent Trends

In recent years, Northfield's population growth has been relatively slow. During the 1980s and 1990s, the town's population increased a total of 3.2% for each decade: an average annual rate of 0.3% since 1980. The town's rate of population growth has been lower than that of Washington County as a whole. Over the past 10 years communities located in the western portion of the county have seen rapid population growth.

All of Northfield's neighboring municipalities experienced higher rates of population growth during the previous two decades, although Roxbury's rate of increase slowed considerably during the 1990s. This is even true with Williamstown that, despite being located some distance from regional population and employment centers, exhibited a significantly higher rate of population growth since 1980. A comparison of population change in surrounding towns is provided in Table 3.1.

Table 3.1 Northfield & Surrounding Communities Population Trends: 1980-2000							
	1980	1990	2000	Change (#)		Change (%)	
				1980-90	1990-00	1980-90	1990-00
Berlin	2,454	2,561	2,864	107	303	4.4%	11.8%
Moretown	1,221	1,415	1,653	194	238	15.9%	16.8%
Northfield Town	5,435	5,610	5,791	175	181	3.2%	3.2%
Northfield Village¹		1,889	2,010		See note		See note
Roxbury	452	562	576	110	15	24.3%	2.5%
Waitsfield	1,302	1,422	1,659	120	237	9.2%	16.7%
Williamstown	2,284	2,839	3,225	555	386	24.3%	13.6%
Washington Co.	52,393	54,928	58,039	2,535	3,111	4.8%	5.7%
Vermont	511,456	562,758	608,827	51,302	46,069	10.0%	8.2%
Source: U.S. Census data, 2000.							
¹ Northfield Village's 2000 population, as reported by the U.S. Census, included students residing on the Norwich University Campus, although the campus is located outside the Village boundaries. The on-campus student population (1,198) was excluded from the Village population in this table. Student residents were included in both the 1990 and 2000 population figures for the town, which includes all village residents.							

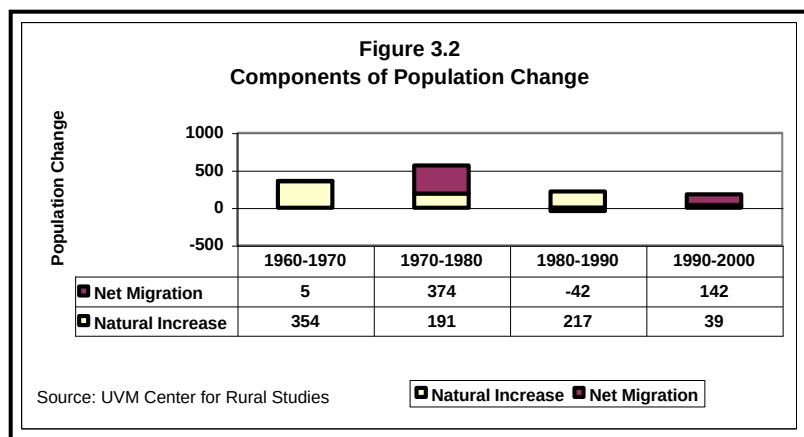
Table 3.2 Northfield Trends 2000 to 2006							
Northfield	'00	'01	'02	'03	'04	'05	'06
Population	5791	5812	5823	5797	5786	5813	5810
Students	778	799	824	783	760	720	711
Households	1819	1830	1841	1851	1818	1799	1831

Source: Central Vermont Chamber of Commerce, Community Profile, 2007.

3.4 Components of Population Change

According to the University of Vermont's Center for Rural Studies, 66% of Northfield's population growth during the 1970s was due to in-migration (people moving to town). During the 1980s, however, all population growth was attributable to natural increase (the number of local births minus local deaths), with more people leaving town during the decade than moving in.

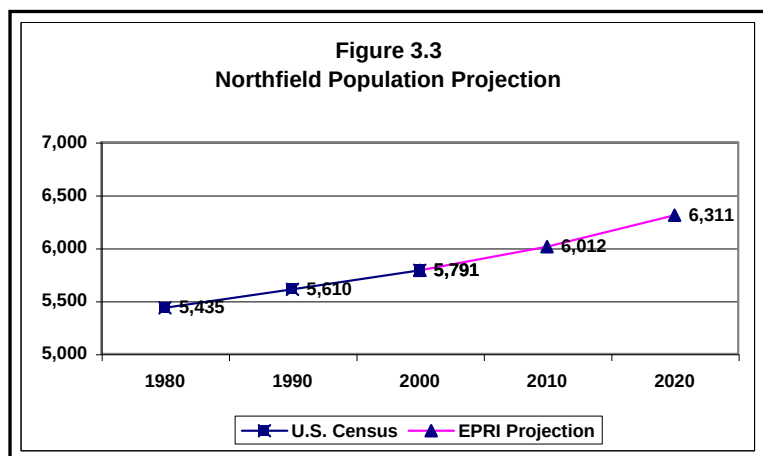
This trend was reversed over the past decade, as 79% of the population increase during the 1990s was attributable to net migration. The remaining 21% of the population growth during the 1990s was due to natural increase.



3.5 Population Projections

In addition to past trends, future population changes should be considered to avoid unanticipated burdens to the community. In 2001, the Central Vermont Regional Planning Commission contracted with Economic & Policy Research Inc. (ERPI) of Williston to prepare economic and demographic forecasts for towns in the region through 2020. According to the ERPI forecast, Northfield's population is expected to increase by an estimated 221 people by 2010, an average annual rate of growth of 0.4%. This is among the slowest projected rate of population increase in Washington County. Figure 3.3 displays the ERPI forecast, to the year 2020.

The gradual decline of rural economies could lead to greater migration into more urban, service-providing communities. To the extent that Northfield serves as a small hub of regional services, this may bring additional population into the Village area



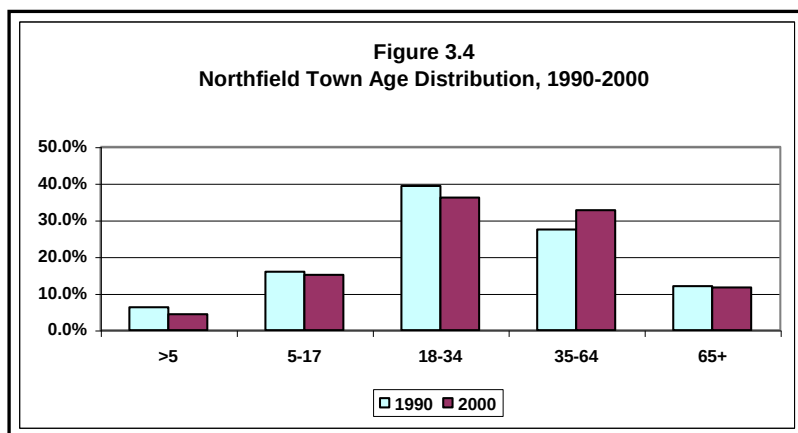
from more rural neighboring towns. Advances in telecommunications open the possibility that increasing rates of telecommuting will shift population outward toward more rural areas.

Continued growth in enrollment at Norwich University affects the municipality's population. The expansion of on-campus student housing will initially result in fewer students living in the community, but also lays a foundation for future growth in the overall student population. Additional staff and related economic development could have a noticeable impact on the municipal population.

Should population projections for the town and Washington County come to pass, Northfield will comprise 9.8% of the county's population in 2010, a slight reduction from the 10% of the county population it comprised in 2000. That percentage is projected to continue to decline, with the town expected to comprise 9.5% of the county's population in 2020.

3.6 *Population Characteristics*

Northfield's population, following state and national trends, has aged over the past decade. The number of children (17 years of age or less) has declined. The Northfield student population has declined over the last 16 years. In 1990 the population was 888, reaching a high of 901 in 1993 and 1994. The population in 2006 was 711. The greatest increase occurred in the 35-64 year old "baby boomer" category. Norwich University's student population inflates the number of 18-34 year old residents in town. Omitting the student population residing in on-campus dormitories considerably reduces the population of 18-34 year olds. It also shows that this age group declined significantly during the 1990s. Unless substantial in-migration occurs, the town's



school-aged population is likely to continue to decline in coming years. The composition of the population in 1990 and 2000 is presented in Figure 3.4.

In addition to age distribution, the U.S. Census provides a range of current information regarding the characteristics of town and village population. A statistical profile of Northfield's 2000 population is provided in Table 3.2, which reveals several similarities – and some

noteworthy differences – between town and village population and that of the county and state.

In many respects, the town's population characteristics in 2000 were quite similar to the county's and state's population. Similarities exist in median family income, ethnic diversity, formal education level, and family size.

In several other respects, the characteristics of the town's population vary considerably from those of the county and state. This is due to the relatively large number of Norwich students, which makes the town population younger, less wealthy (as indicated by per capita income), disproportionately male, and less impoverished. If the student population is not included, the town's population is similar in most respects to that of the county and that of the state.

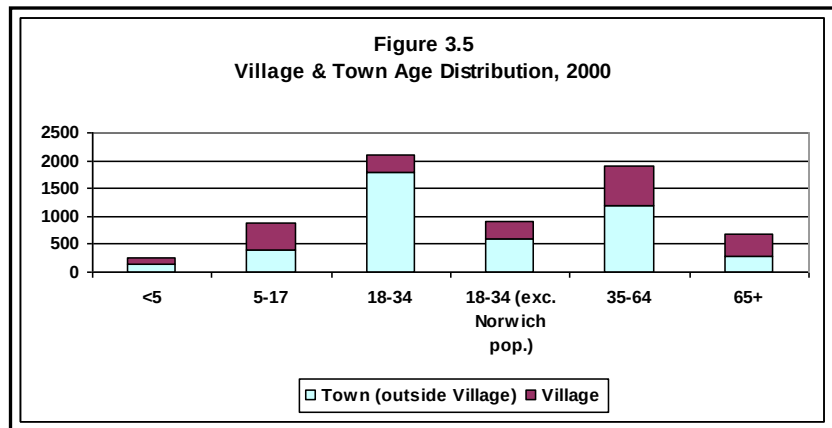
Table 3.3
Northfield Population Profile

	Northfield Town	Northfield Village	Washington County	Vermont
Population	5,791	3,208	58,039	608,827
Male	54.9%	58.7%	49.0%	49.0%
Female	45.1%	41.3%	51.0%	51.0%
Minority	4.6%	6.6%	1.7%	2.1%
Born in Vermont	50.0%	42.2%	58.5%	54.3%
Foreign Born	2.9%	3.8%	3.6%	3.8%
Veterans	14.7%	11.8%	13.9%	13.6%
With a Disability (non-institutionalized)	8.2%	10.1%	17.3%	16.1%
Median Age	29.7	22.1	38.5	37.7
Children (< 18 years old)	19.4%	15.0%	23.5%	24.2%
Elderly (> 65 years old)	11.6%	11.8%	12.9%	12.7%
High School Graduates	86.6%	83.6%	88.4%	86.4%
College Graduates	29.6%	25.5%	32.2%	29.4%
Per Capita Income	\$15,592	\$11,760	\$21,113	\$20,625
Below Poverty Level	6.7%	12.1%	8.0%	9.4%
Children Below Poverty Level	6.1%	9.5%	9.1%	10.7%
Elderly Below Poverty Level	6.2%	10.0%	6.8%	8.5%
Families	1,225	487	15,147	157,736
Families w/ Children	32.4%	32.4%	31.0%	31.8%
Average Family Size	2.95	2.92	2.91	2.96
Median Family Income	\$51,818	\$39,783	\$51,075	\$48,625
Families Below Poverty Level	3.2%	6.5%	5.5%	6.3%
Population Living in Group Quarters ¹	1,312	1,312	2,117	20,760
Institutionalized Population	2.0%	3.6%	1.1%	0.9%
Non-institutionalized Population	20.7%	37.3%	2.6%	2.5%

Source: U.S. Census data, 2000.

¹Population figures for the Village include 1,198 Norwich University students residing on-campus, although the University's student housing is located outside the Village.

Census figures also provide comparative information between the town's population and that portion of the town's population residing in the village. Somewhat surprisingly, the village population contains both a greater percentage of elderly residents and a greater percentage of school aged children. The elderly population includes residents of senior care facilities, and the relatively large school aged population may indicate the presence of younger families, although the percentage of 18-34 year olds is low relative to the town outside of the village.



The village population also is less wealthy, as indicated by median family income (which excludes students) and poverty rates. While the percentage of village families living below the poverty level (6.5%) is slightly higher than the county (5.5%), it is considerably higher than that of the town (3.2%, which includes village residents). Further, the percentage of village individuals living in poverty (12.1%) is significantly higher than in the town (6.7%), county (8.0%), or state (9.4%).

3.7 Special Populations

The 2000 Census identified two significant populations living in group quarters in Northfield. The village had an institutionalized population of 114, which includes residents of local senior care facilities. The number of residents in such facilities has remained stable since 1990.

An additional 1,198 students were reported to be living on the campus of Norwich University in 2000. According to university officials, that number had increased to nearly 1,500 in 2009. An additional 437 students lived off-campus. These commuter students, which include dependents of university employees, reside throughout central Vermont, although many are presumed to live in private apartments within Northfield.

The university does not anticipate a substantial change in the number of commuter students over the next 5 to 10 years. The number of students residing on campus, however, may increase by as many as 250 during the same period. Such an increase in enrollment would be accommodated through the construction of new on-campus housing. The Norwich University Campus Master Plan Update, completed in January 2005, contains three major phases which cover the period 2008 through 2019. As part of Phase I a 280 bed student housing facility (started in the summer of 2008) will be constructed. As part of Phase II (beginning in 2012) a 235 bed student housing facility is planned. As part of Phase III (beginning in 2015) a 235 bed student housing facility is also being planned. During this same period the number of students living off-campus is expected to drop to about 100.

As stated previously, a relatively high percentage of the village population is living below the poverty level (232 individuals). A relatively high number of elderly residents also reside in the Village (378 individuals over 65 years of age), although the percentage that is elderly is skewed by the student population. An additional 296 elderly residents reside outside of the village.

In 2000 there were, in addition to the 114 residents of residential care facilities, 564 elderly residents (aged 65 and over) living in the town. Of these, nearly half (274) were disabled. An

additional 659 non-elderly residents were identified by the Census as disabled. When the university student population residing on-campus is deleted from the total population, over 20% of the town population and over 25% of the village population is identified as disabled. Disabilities reported may include a range of physical or mental conditions that limit an individual's ability to perform one or more normal daily activities. This is significantly higher than the percentage of the county population (17.3%) or state population (16.1%) that is disabled. It is important to note, however, that 68.6% of the disabled population aged 21 to 64 (510 residents) are presently employed. This is a slightly higher percentage than for the county (64.1%) or state (60.0%), which may indicate that the local disabled population does not have an uncommonly high demand for special services relative to the county as a whole.

3.8 Population (Growth Management) Goals, Policies & Tasks

Goal

To accommodate a reasonable rate of growth to maintain a diverse year-round population and without overburdening facilities and services.

Policies

1. Accommodate a level of development over the next 10 years that results in a minimum average annual rate of population growth of 0.4% (approximately 22 new residents annually) within the town and village, in addition to potential enrollment increases at Norwich University.
2. Encourage, through land use and housing goals and policies, a socially and economically diverse population.
3. Promote a greater increase in year-round population (in excess of the projected 0.4% annual rate of increase) and associated development within municipal sewer and water service areas.

Tasks

1. Track annual permit data, and monitor population and housing estimates prepared annually by the Vermont Department of Health, to identify correlations between housing development and population growth [Planning Commission, Staff].
2. Periodically review and update enrollment projections in relation to population growth and housing development [School Board, Planning Commission].
3. Prepare a Capital Improvement Program (CIP), including an annually updated and adopted capital budget, to identify and schedule needed capital improvements based on anticipated population growth and available financing [Selectmen and Trustees, in association with the Planning Commission and School Board].
4. Exercise statutory party status in Act 250 and other state regulatory proceedings as appropriate, to ensure that town and village growth needs and limitations are adequately addressed in accordance with municipal plan policies and recommendations [Planning Commission, Selectmen].

Chapter 4 Housing

4.1 Overview

A safe, decent place to live is one of life's basic necessities. For this reason, a main goal of local planning is to ensure sound, safe, and affordable housing for all Northfield residents, now and in the future.

Northfield is fortunate to have a variety of housing that offers new and existing residents a broad range of rental and ownership opportunities. A diverse housing stock supports a diverse community: providing homes for families and individuals in various stages of life, who work in town, support community organizations, and contribute to the local economy. Housing represents a major investment for many local residents. For some, however, household incomes may not be keeping pace with rising housing costs.

Housing also represents an important community investment. Well-constructed and maintained homes, including many of the historic homes that line our village streets, contribute much to Northfield's tax base, historic character, and sense of place. On the other hand, housing that is poorly sited, constructed or maintained can destroy natural resources, overburden public services, reduce property values, increase household operating expenses, and result in unsafe housing conditions and a general sense of decline. Planning to meet community housing needs requires a more careful look at local households, and related housing and market trends.

The dramatic spike in oil prices in 2008 illuminated the relationship between housing stock and energy use. Older homes, such as many in the Village, can be updated to increase energy efficiency while maintaining historic features. The municipality should plan to support residents' efforts to improve existing housing stock in order to meet future energy supply uncertainty.

4.2 Household Trends & Characteristics

How the local population is arranged into households affects the demand for housing, employment, public services and facilities. The number of households in Northfield has increased over the years as the town's population has grown, while the number of people per household has gotten smaller. A snapshot of Northfield's changing households is provided in Table 4.1.

According to the U.S. Census, in 2000 there were 1,819 households in Northfield, 45% of which resided in Northfield Village. During the 1990s, 137 new households were established in town, over half (52%) of which were located in the Village. The number of households has been increasing more rapidly than total population, contributing to the local demand for housing. Between 2000 and 2006, the number of households in Northfield grew from 1819 to 1831.

Table 4.1 Northfield Household Trends, 1990-2000								
	Northfield Town				Northfield Village			
			Change				Change	
	1990	2000	Number	Percent	1990	2000	Number	Percent
Households	1,682	1,819	137	8.1%	741	811	70	9.4%
Avg. Size	2.61	2.46	-0.15	-5.7%	2.4	2.34	-0.06	-2.5%
Family	1,194	1,225	31	2.6%	469	487	18	3.8%
Non-family	488	594	106	21.7%	272	324	52	19.1%
65+ living alone	202	177	-25	-12.4%	124	102	-22	-17.7%
Source: U.S. Census data, 2000.								

Following national and statewide trends, household size has been declining in recent decades – the result of an aging population, families having fewer children, the breakup of extended family households, and a relative increase in single parent and non-family households. Northfield's average household size, as noted above, decreased from 2.61 persons per household in 1990 to 2.46 persons in 2000. Town wide, households were slightly larger than state and county averages, and included a higher percentage of households with children and single parent families. Village households are typically smaller, averaging 2.34 persons per household in 2000. This is likely due to the higher percentage of non-family, single parent, and elderly households in the village (Table 4.2).

Table 4.2 Comparative Household Characteristics					
	Average Size	% Non-family	% w/Children <18 yrs	% Single Parent w/Children	% Elderly (65+ yrs) Living Alone
Northfield	2.46	32.7%	34.6%	9.2%	9.7%
Northfield Village	2.34	40.0%	34.3%	12.7%	12.6%
Washington Co.	2.36	36.4%	32.6%	8.8%	10.2%
Vermont	2.44	34.4%	33.6%	8.5%	9.5%
Source: U.S. Census data, 2000.					

Non-family households in Northfield include Norwich University students who live independently, off-campus. As noted in the previous chapter, there were around 300 students living off-campus in 2002 and about 350 in 2007. Campus housing, consisting of dormitories and barracks (group quarters), served another 1,200 students. It was not known how many commuter students reside in town. There was concern, however, that off-campus student housing was affecting the

condition of the housing stock, the character of some village neighborhoods, and the local rental market. The university considered the management of off-campus housing by private landlords as contributing to this situation. Additional on-campus housing for civilian students is being constructed in 2009.

It is anticipated that household size will continue to decline, and that there will be increases in non-family, empty nest, and elderly households. Non-traditional household arrangements may increase local demand for accessory apartments, low-maintenance rental units, and smaller starter or retirement homes. The aging of the population may shift growth pressure away from the undeveloped rural lands and into the more densely-settled village areas. Conversely, residents' sensitivity to higher taxes in the Village may support continued development of outlying areas.

4.3 Housing Trends

Historically, as a local commercial and transportation hub, Northfield experienced much more residential development than did its neighbors. This held true until 1970, when the rate of housing growth in surrounding communities began to surpass that of Northfield. As reported in 2000, Northfield housing units numbered 1,958, representing 7% of the Washington County's total housing stock. Of these, 857 units (43.7%) were located in Northfield Village. Of its immediate neighbors, only Warren had more housing units as a result of explosive ski area-related condominium and seasonal home development in the 1970s and 1980s (Table 4.3).

Table 4.3 Comparative Housing Trends: 1970-2000							
	Total Units				%Change		
	1970	1980	1990	2000	1970-80	1980-90	1990-00
Berlin	683	918	1,022	1,172	34.4%	11.3%	14.7%
Brookfield	300	457	565	602	52.3%	23.6%	6.5%
Moretown	392	544	639	727	38.8%	17.5%	13.8%
Northfield	1,312	1,704	1,877	1,958	29.9%	10.2%	4.3%
Roxbury	188	229	335	362	21.8%	46.3%	8.1%
Waitsfield	392	684	831	908	74.5%	21.5%	9.3%
Warren	347	1,337	1,949	2,078	285.3%	45.8%	6.6%
Williamstown	555	861	1,133	1,318	55.1%	31.6%	16.3%
Washington Co.	16,258	22,113	25,328	27,644	36.0%	14.5%	9.1%
Vermont	165,063	223,154	271,216	294,382	35.2%	21.5%	8.5%
Source: U.S. Census data, 2000.							

The rate of housing development in Northfield has slowed significantly in past decades, declining from an average of nearly 40 units per year in the 1970s, to 17 units per year in 1980s, down to less than 10 units per year in the 1990s. During the last decade, Northfield's rate of

housing growth was the slowest in the area, and roughly half that of the state. The rate of housing growth in the village during the same period (7.7%) actually exceeded that of the town. Interestingly, 2000 Census data suggest that this was due to the construction of new single-family homes in the village, rather than the conversion of existing single-family dwellings into multi-family units.

Given current population projections through 2010 (~220 additional persons), average household size (2.46 persons per household), and low vacancy rates, it is anticipated that Northfield will need 90 to 100 additional housing units by the year 2010. This represents little or no increase in the current rate of housing development.

The Central Vermont Regional Planning Commission has requested that municipalities in the region plan to accommodate an assigned proportion of the projected regional housing demand of 8,835 new units between 2000 and 2020. Northfield must demonstrate that the municipality can develop 510 new housing units consistent with its current planning and zoning.

This Plan includes a map showing the distribution of eighty percent of these 510 housing units within existing zoning districts. The location of the units is based on a build-out analysis conducted in early 2009 by the Central Vermont Regional Planning Commission, with funding from the State of Vermont Department of Housing and Community Development Municipal Planning Grant program. The build-out analysis map and report are available for review in the municipal zoning office. The new units are proportionally concentrated in the higher-density residential areas served by existing public infrastructure, in order to maintain state, regional, and local goals of balanced community development and avoidance of expensive, sprawling development patterns.

The public meeting held in 2009 to address housing issues concluded that residents have mixed feelings about planning for new development. Some participants expressed a strong interest in maintaining the current rural character and historic appearance of Northfield, and urged caution in considering efforts to attract future development. Multi-unit construction could minimize land consumed by new development, but would require careful location to avoid altering the character of existing neighborhoods.

4.4 Housing Development

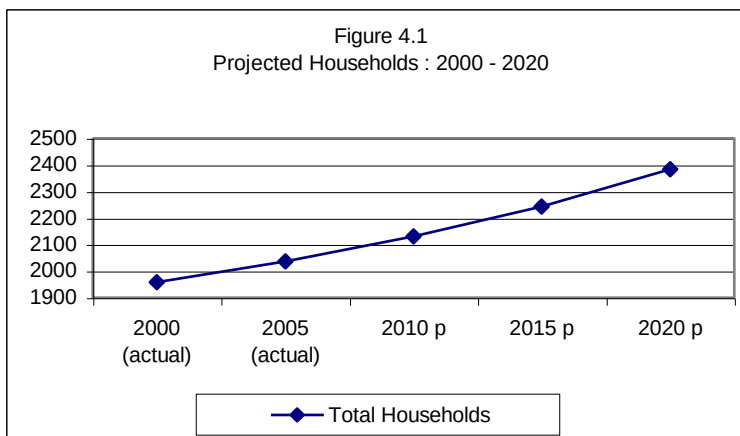
The majority of recent housing development has involved the construction of single family homes on parcels larger than 3 acres. Almost all new construction since 2000 has occurred in town rather than the village.

Table 4.4 Northfield Zoning Permits for New Dwelling Units: 1996-2006											
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1-Family	9	6	9	9	13	11	7	13	18	14	8
Mobile Homes	5	0	9	6	7	6	5	2	5	5	4
Apartments	0	0	0	1	3	1	0	6	2	2	2

In addition to developing population projections for CVRPC in 2000, Economic Policy Research Inc. also prepared housing demand forecasts for the next 20 years. The number of households in Northfield is projected to increase at an average annual rate of 1.08% for the 20 year period – larger than the 0.71% average annual rate of growth forecasted for Washington County. A total

of 426 new housing units are projected between 2000 and 2020 (for a total of 2,384 or 21.7% growth)*1. In fact, neighboring Duxbury and Fayston are predicted to have higher (2.6%) average annual increases. The towns of Middlesex and Worcester are also predicted to experience a 2.5% annual increase over the 20 year period. Northfield's projected growth – which translates to 426 new households by 2020, for a total increase of 21.7% – is presented in Figure 4.1.

It is worth noting that the projected increase in the number of households exceeds projected population growth. This indicates that the size and composition of households is expected to change, with smaller households likely to be comprised of older residents and more non-traditional families. If the general make-up and average size of existing households does not change significantly, the projected addition of approximately 207 households over the next 10 years will result in a population increase well beyond the increase of 19 people experienced in the period 2000 through 2006. Based upon the current average household size of 2.46 people, 207 new households would result in an increase of approximately 509 people over the next 10 years.



Monitoring growth in population and households will identify whether changes in average household characteristics are occurring. Without such monitoring, however, a more reasonable rate of household growth, relative to the projected population increase, is an average of no more than 4.5% over the next 10 years (an average of 9 households per year over the 10 year period).

4.5 Housing Characteristics

A summary of local housing characteristics is presented in Table 4.5. In 2000, housing in both the town and village consisted largely of owner-occupied, single family dwellings, though as expected, the village had a much higher percentage of multi-family and rental units. Seasonal homes made up a very small portion of both town and village housing.

Local vacancy rates for both sale and rental units have decreased over the past decade, reflecting an increasingly tight housing market. The reported 2000 local vacancy rate for sale units was only 1.3% –compared to statewide rate of 1.4%. The vacancy rate for rental units was 3.4%, compared with a 4.2% rate for the state.

1 Based on information provided in the CVRPC Northwest Growth Study and Build-out Analysis.

Table 4.5 Northfield Housing Characteristics, 2000				
	Northfield Town	Northfield Village	Washington County	Vermont
<i>Total Housing Units</i>	1,958	857	27,644	294,382
% occupied	92.9%	94.6	85.6%	81.7%
% owner-occupied	68.4%	51.2%	68.5%	70.6%
% renter occupied	31.6%	48.8%	31.5%	29.4%
% seasonal	3.4%	2.0%	11.2%	14.6%
Vacancy rate/sale units	1.2%	1.4%	1.0%	1.4%
Vacancy rate/rental units	3.4%	3.9%	3.5%	4.2%
% single family-detached	61.5%	50.7%	61.5%	65.6%
% single family attached/two-unit	8.9%	13.6%	10.9%	10.6%
% multi-family (3+ units)	17.0%	30.0%	21.3%	15.8%
% mobile homes	12.5%	5.7%	6.2%	7.7%
Median # rooms	5.7	5.6	5.6	5.6
% w/ >1.0 occupant/room	0.7%	0.7%	1.3%	1.5%
% lacking complete plumbing	0.6%	0.0%	0.7%	0.6%
% lacking complete kitchen	0.9%	0.0%	0.8%	0.6%
% built since 1990	12.8%	4.7%	10.7%	13.7%
% built before 1939	44.7%	63.2%	35.4%	30.0%
Source: U.S. Census data, 2000 (including sample data).				

Much of Northfield's housing stock, including many of its historic village homes, was built prior to 1939. Older homes, while lending to the town's historic character, are often more difficult and expensive to heat and maintain because of their age, size and condition. No comprehensive survey of local housing conditions has been conducted recently, but 2000 Census data suggest that all but a few homes in town have been upgraded over the years to include complete plumbing and kitchen facilities. Overcrowding is also not a problem; fewer than 1% of units house more than one occupant per room.

The general condition of housing varies in the community. There is concern that the conversion of older single-family homes into rental units is leading to their deterioration. This perceived trend could be more clearly evaluated and documented through a local housing survey.

Special Needs Housing

Group Housing. As noted, Norwich University provides on-campus housing for 1,400 resident students. The need for additional student housing was addressed in the university's 2005 Campus Master Plan Update.

There are also two licensed Level III residential care facilities in town: the Four Seasons Care Home on South Main Street, and the Mayo Assisted Living on Water Street. Mayo Nursing Home on Richardson Avenue offers an advanced level of long-term care. These homes have a combined capacity to serve up to 133 elderly men and women and adults with disabilities. Services, provided on a fixed-fee basis, include room, board, help with personal care, 24-hour non-medical supervision, and limited nursing assistance.

Subsidized Housing. There are currently 94 publicly subsidized housing units in Northfield, which provide housing for low-income families and individuals (Table 4.6). These units, located in six housing developments, represent 4.3% of the town's housing stock, and 5.0% of the county's total supply of subsidized housing. The three largest developments, accounting for 82 of the 94 units, are managed by the Vermont State Housing Authority. The others are managed locally. One-bedroom units specifically designated for elderly housing make up 44.6% of the total. Only 3 of the 94 units (3.19%) are three-bedroom units, which can house larger families.

Table 4.6 Subsidized Housing						
Development	Units	Bedrooms			Elderly	Handicapped Accessible
		1	2	3		
28½ Vine	2	0	2	0	0	0
Dogwood Glen I	32	16	16	0	0	0
Dogwood Glen II	20	12	8	0	12	1
Green Mt Apts	30	30	0	0	30	3
Vine Street Apts	7	1	3	3	0	7
Water Street	3	0	3	0	0	0
Total	94	59	32	3	42	11
Source: <i>Directory of Affordable Housing</i> , VT Dept. of Housing & Community Affairs, 2008.						

Mobile Home Parks. Seven of Washington County's 26 mobile home parks are located in Northfield, which include 18% of the county's total inventory of leased mobile home lots (Table 4.7). All but two of Northfield's parks were established prior to 1980, and all are privately owned and managed. Monthly lot rents in 2007 were generally less than state (\$268) and county (\$310) medians, and varied in part based on the number and types of services provided.

Table 4.7							
Northfield Mobile Home Parks							
Park	Year Est.	Lots			Mobile Home Ownership		Lot Rent [Jan 07]
		Total	Leased	Vacant	Park	Leaseholder/ Other	
North Main MHP	1994	6	6	0	0	6	\$285
North Main MHP	2002	7	6	1	0	6	\$300
Northfield Falls MHP	1965	51	41	10	0	41	\$345
Smith's Trailer Park	1970	6	6	0	1	5	\$160
Trombly's Trailer Park	1973	15	15	0	9	6	\$267
Tucker MHP	1975	32	31	1	1	31	\$270
Winch Hill MHP	1966	13	11	0	1	12	\$210
Total		130	116	12	12	107	NA
Source: 2007 Registry of Mobile Home Parks, VT Dept. of Housing & Community Affairs [2/08].							

Mobile home parks are viewed by the state as a means of providing safe, sanitary, and affordable housing for low and moderate-income households. Given the age of many parks, the rate of their sale and conversion to other uses, the lack of new park development, and limited vacancy rates statewide, retaining and improving mobile home parks have become matters of state policy. As such, a number of laws and programs have been adopted in recent years to improve and protect existing parks. This includes the "Mobile Home Park Law (Act 252)" which requires that park residents be given notice of any intent by the owners to sell the park. Residents then have a limited period of time to consider purchasing the park, with some assistance from the state, either through a resident cooperative or a nonprofit housing agency.

There is concern that mobile home parks in the vicinity of the town's well field, which are not connected to the municipal wastewater system, may pollute the public water supply. A line extension to serve these parks is under consideration as part of the proposed upgrade of the municipal wastewater treatment system.

4.6 Housing Affordability

When viewed statewide, housing in Northfield is less expensive than housing elsewhere in Vermont (Table 4.8). According to U.S. Census data, the median reported value for a house in Northfield in 2000 was \$96,700, which represents 94% of the county median, and only 87% of

the statewide median.² Housing in the village generally was more affordable. Reported monthly mortgage and owner costs for local homeowners were also generally lower than county and state medians; however, local monthly rental rates were higher than the county median.

Table 4.8 Housing Cost Comparisons, 1999				
	Northfield Town	Northfield Village	Washington Co.	Vermont
Median Household (HH) Income	\$41,523	\$33,348	\$40,972	\$40,856
Median House Value	\$96,700	\$89,100	\$102,500	\$111,500
Median Monthly Mortgage	\$984	\$952	\$1,008	\$1,021
Mortgage > 30% HH Inc (% units)	26.7%	27.4%	22.6%	23.1%
Median Monthly Gross Rent	\$547	\$531	\$519	\$553
Rent > 30% HH Inc (% units)	33.1%	32.3%	36.0%	37.5%
Source: 2000 U.S. Census.				

Relative affordability, however, is also determined by household income. Between 1989 and 1999, Northfield's median household income increased by more than 40%. Median mortgage costs increased by 56.7% over the same period, which suggests that local incomes were not keeping up with rising homeowner costs.

According to federal and state definitions currently in use, housing is affordable when households at or below the median income level spend no more than 30% of their gross household income on housing costs. In 2000, 27% of Northfield homeowners, and 33% of local renters, were paying in excess of 30% of their incomes on housing. This indicates that housing may not be affordable for at least a portion of the local population, and particularly for local renters who generally have lower household incomes.

An affordability analysis based on federal and state 2008 income and housing cost data (summarized in Table 4.8) suggests that local housing is currently affordable for all but Northfield's very low-income households. This analysis, however, assumes household incomes based on two wage earners. Single wage earner households and households on fixed incomes may also be expected to have difficulty keeping up with rising housing costs.

² It is important to note that census values, as reported by individuals, represent personal estimates that do not necessarily reflect current sale prices or assessed values. For Northfield, the median sale price in 2000 of a single family dwelling on less than six acres (R1) was \$93,000; and for a dwelling on more than six acres (R2) \$105,000, based on property transfer data. The average assessed value for R1 property on the 2000 grand list was \$78,869.

Table 4.9
Housing Affordability Analysis, 2008

Income Level Estimates (2008)	Given an annual household Income of ...	And that total monthly housing costs should not exceed 30% of income, or ...	The maximum price of a house that could be purchased (with 5% down) would be...	Given the median value of a house in 2007 was \$162,750, the difference (gap) for homeownership would be...	Given the fair market rent (HUD) in 2008 for a 2-bdrm apt is \$763, the difference (gap) for renting would be...
HUD Cnty (2008)					
Median Income	\$64,300	\$1,608	\$203,000	\$40,250	\$845
Low (80%)	\$51,440	\$1,286	\$162,000	(\$750)	\$523
Very Low (50%)	\$32,150	\$804	\$100,000	(\$62,750)	\$41
MFAGI**(2006)					
Median Income	\$54,082	\$1,352	\$170,000	\$7,250	\$589
Low (80%)	\$53,961	\$1,342	\$169,000	\$6,250	\$579
Very Low (50%)	\$27,041	\$676	\$83,500	(\$79,250)	(\$87)
Avg Wage (x2) (2007)					
Average Income	\$67,114	\$1,678	\$212,000	\$49,250	\$915
Low (80%)	\$53,691	\$1,342	\$169,000	\$6,250	\$579
Very Low (50%)	\$33,557	\$839	\$104,500	(\$58,250)	\$76

Notes:

1. Housing is defined as "affordable" when households with incomes at or below median income pay no more than 30% of their gross household income on housing costs; low income=80% median, very low income=50% median.
2. HUD County income is the estimated median family income for Washington County in 2008 [US Dept. of Housing and Urban Development].
3. Median Family Adjusted Income, as reported by the VT Tax Dept. for Northfield in 2006
4. Average annual wage as reported by VDET for Northfield in 2007; doubled to estimate household income from 2 wage earners.
5. Mortgage amount assumes financing for 30 years, at a fixed rate of 6%.

Source: <http://www.housingdata.org>

It appears that homeownership may be financially out of reach for some low- and moderate-income Northfield residents. Home purchase programs are available for income-qualified local residents through the Central Vermont Community Land Trust and the Vermont Housing Finance Agency. County residents with household incomes less than \$70,500 (or \$81,000 for a family of three or more) currently may qualify for low interest Vermont Housing Finance Agency mortgages to finance existing homes selling for up to \$275,000, or new homes valued up to \$275,000. These figures are updated annually in relation to reported incomes and rising housing costs.

4.7 Regulating Housing

Vermont municipalities may regulate residential development, but cannot exclude certain types of housing, such as mobile homes and mobile home parks, from the community. Towns are also required to address local housing needs, and to provide for their share of regional housing, as determined for Washington County by the Central Vermont Regional Planning Commission.

Under “equal treatment of housing” provisions in state law, the town must also allow for mobile homes, other types of manufactured housing, and small group homes (serving six or fewer residents), in the same manner that conventional single family homes are allowed. “Accessory apartments” to single-family dwellings, to house elderly or disabled family members, must also be allowed subject to review under local zoning. To encourage the development of more affordable housing statewide, state law was amended recently to allow municipalities to grant density bonuses of up to 50% for affordable housing within planned residential or planned unit developments. Northfield’s current zoning allows for planned residential and planned unit development to encourage a variety of housing types and clustered residential development, but does not allow for any increases in density.

At present, it appears that Northfield is generally providing for its fair share of local and regional housing; however, local regulations should be reviewed to make sure they are consistent with state housing definitions and requirements, and to allow for the development of affordable housing as needed in areas supported by infrastructure and services. Local regulations could also be updated to define and better address affordable and elderly housing, accessory apartments, group homes, residential care facilities, mixed use buildings (that could include apartments), mobile home parks, and the conversion of single family to multi-family dwellings.

Participants in the public meetings that contributed to the development of this plan remarked that the current zoning district requirements are inconsistent with existing land uses. This not only makes improvements to existing properties difficult, it discourages new development that is consistent with existing settlement patterns. This is particularly true in the more densely settled areas, and may impede future growth.

4.8 Housing Goals, Policies & Tasks

Goal

To ensure the availability of safe and affordable housing for all Northfield residents.

Policies

1. Housing should be encouraged to meet the needs of a diversity of social and income groups, particularly for Northfield residents of low and moderate income.
2. New and rehabilitated housing should be safe, sanitary, and located conveniently to employment and commercial centers.
3. Housing development should be coordinated with the provision of necessary supporting public infrastructure, services, and facilities.
4. Housing development should be consistent with the goals and policies of the Central Vermont Regional Planning Commission, the State of Vermont Department of Housing and Community Affairs, and the surrounding municipalities.
5. Sites for manufactured and multi-family housing should be made available in locations similar to those used for conventional single-family dwellings. Higher densities of residential development should be considered in areas served by municipal water and wastewater facilities.

6. Accessory apartments should be allowed within or attached to single-family dwellings to provide affordable housing, supervision and care for elderly or disabled relatives.
7. Off-campus student housing should be monitored and regulated locally as needed to minimize adverse impacts to residential neighborhoods in Northfield Village. Any expansion in student enrollments at Norwich University should be accommodated through the development of on campus housing.
8. Northfield's existing affordable housing stock, including subsidized housing units and mobile home parks, should be managed, maintained and improved as needed to ensure their long-term availability and affordability.
9. The character of Northfield's historic homes and neighborhoods should be preserved and enhanced through historic designations, voluntary preservation efforts, and/or historic or design review criteria that ensure compatible development.
10. There should be a variety of housing choices for all residents, particularly to meet the needs of older residents.

Tasks

1. Conduct a local housing survey, funded through a state municipal or community development planning grant, to evaluate local housing conditions, and to identify ways to address affordable or substandard housing [Selectmen/Trustees in association with the Planning Commission and Staff].
2. Conduct public education on housing issues by mailing residents on issues such as fire safety and lead paint [Selectmen/Trustees in association with the Planning Commission and Staff].
3. Participate in the *Home Share* program coordinated by Central Vermont Council on Aging to match elderly homeowners needing limited services with tenants who are willing to provide services [Selectmen/Trustees, Central Vermont Community Land Trust.]
4. Identify and support unique housing development opportunities, such as the adaptive reuse of historic buildings, which potentially could be funded through Community Development Block grants [Selectmen/Trustees and Staff, Planning Commission].
5. Maintain representation on, and work with Norwich University's facilities planning committee to address on-campus student housing needs; and work with university officials, local landlords, and neighborhood groups to monitor and address off-campus student housing impacts on residential neighborhoods. Update and enforce noise and parking ordinances as needed [Selectmen/Trustees and Staff].
6. Extend municipal wastewater services to existing mobile home parks within the vicinity of Northfield's well fields, to abate failing on-site systems, and to protect the town's public water supplies [Selectmen and Trustees].
7. Consider nomination of a "Northfield Village Historic District(s)," to the National Register of Historic Places to provide tax credit options to interested homeowners for the renovation and improvement of historic properties in the village [Planning Commission, Historical Society].
8. Update and revise local zoning regulations for consistency with state equal treatment of housing requirements, incorporating improved definitions and criteria for manufactured homes, mobile home parks, group homes, and licensed residential care facilities. [Planning Commission, Zoning Board of Adjustment]

9. Consider zoning or other ordinances or implementation measures to accomplish the following.
 - Density bonus provisions for affordable housing within planned residential or planned unit developments, as allowed under state law,
 - The establishment and/or expansion of mobile home parks in appropriate locations,
 - Allowing multi-family dwellings and Planned Residential Developments (PRDs) in additional districts (e.g., with a cap on the number of dwelling units per structure in lower density districts or residential neighborhoods),
 - Elimination of incompatible or low density residential uses in principally industrial zoning districts,
 - Increased density and/or reduced lot size requirements for multi-family dwellings in higher density (e.g., village) zoning districts,
 - Provisions for mixed-use buildings that may include apartments, in appropriate districts (e.g., village and commercial districts),
 - Reduced parking requirements for elderly and/or affordable housing development, and for accessory apartments,
 - Wastewater allocations for elderly and/or affordable housing development within a defined sewer service area, and for pollution abatement (e.g., for mobile home park connections) outside the service area,
 - Additional standards for the conversion of single family to multi-family dwellings to address potential infrastructure and neighborhood impacts, and
 - Historic or design review criteria (e.g., regulatory standards or advisory guidelines) to encourage the preservation of historic homes, or to require compatible development within historic neighborhoods. [Planning Commission, Selectmen, Staff]
10. Review housing recommendations, and any regional fair share allocations, included in the next Central Vermont Regional Plan or related regional housing studies, for consideration within local housing programs and/or regulations as appropriate [Planning Commission, Staff].
11. Consider the adoption of building codes and code enforcement to ensure the safety of housing. [Select Board]
12. Create a task force to study and possibly initiate design review, including identifying criteria to consider in such review and defining a potential design review district. [Planning Commission]
13. Revise zoning district requirements to ensure that they are consistent with existing patterns of land use. [Planning Commission]

Chapter 5 Local Economy

5.1 Overview

The Town and Village of Northfield³ have long supported an economic climate in which local residents have access to meaningful employment within the community. Not only does a healthy economy directly benefit Northfield citizens, economic development can benefit the community

³Employment and economic data were not available for Northfield Village; consequently, all figures presented in this chapter represent both Town and Village combined unless otherwise noted.

by expanding the municipal property tax base. Although taxes to support local schools are no longer based solely upon a community's property wealth, municipal services and facilities are still funded through locally levied property taxes. This section addresses economic trends and conditions, and provides background regarding the community's ongoing economic development efforts.

Discussions with Northfield citizens highlighted the role of Northfield in the regional economy. Many residents work in other parts of the state, such as Montpelier and Burlington. Many come to Northfield to work, and return home to neighboring communities. In considering future economic development projects, it will be critical to bear in mind the regional nature of the economic system.

The public forums also revealed tensions between a focus on developing local economic activity and a focus on developing the capacity to participate more in global economic activity. Northfield has ample natural resources to use in local food and energy production, thereby decreasing the tendency to spend money elsewhere on these necessities. On the other hand, advances in telecommunications are integrating Northfield into broader economic systems; residents do not need to leave their homes to be part of the global economy.

5.2 *Economic Trends*

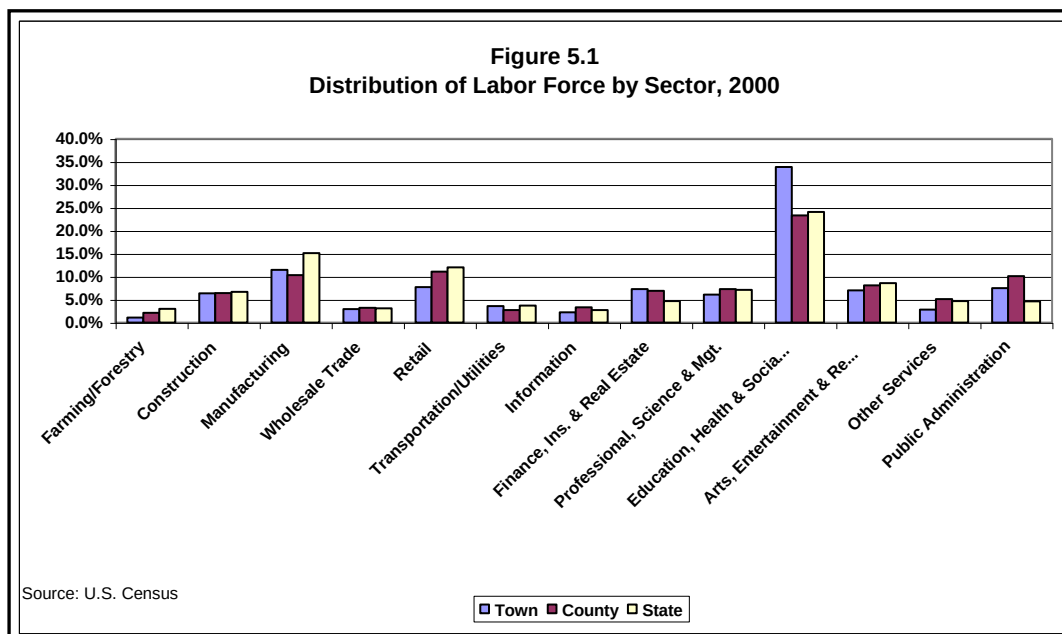
Labor Force

Northfield's resident labor force is composed of residents aged 16 and above, excluding full-time students, retirees, and others who choose not to work for wages or salary. Of the 4,825 Northfield residents aged 16 and over, 3,100, or 61.2%, are in the labor force. This relatively low percentage (compared to 69.3% for the state and 70.5% for the county) is largely attributable to Norwich University's student population. Nearly half (48.5%) of the town's labor force resides in Northfield Village.

According to the 2000 U.S. Census, approximately 35% of local workers are employed in education, health, and social services, which is a much larger percentage than that of the county and state. This includes local residents employed by Norwich University, the town's largest single employer. A breakdown of the labor force, by industrial sector, is presented in Figure 5.1.

As of July 2002, the unemployment rate in Northfield was 4.7%, compared with a rate of 4.0% for the county as a whole. Unlike the county, which has seen its unemployment rate increase from the previous year, Northfield's rate of unemployment remains unchanged from July 2001.

Journey to work data, compiled by the Census Bureau, identify where local residents are



employed. Although these 2000 census data have not yet been published, 1990 data indicated that 46.9% of the resident labor force (1,228 workers) was employed in town. In addition, 14.6% of local residents worked in Montpelier, 7.6% in Barre City or Barre Town, and 4.4% in Berlin. An additional 29% of all workers employed in town commuted into Northfield from other places.

Despite the lack of more recent journey to work data, it is noteworthy that the average commute to work for town residents in 1990 was 18.9 minutes. In 2000, the average commute had increased only slightly to 21.1 minutes. This likely indicates that a significant percentage of local residents are still employed within the community. Such a conclusion is supported by employment data reported for the town.

Covered Employment

In contrast to the resident labor force, which is composed of all workers living in Northfield, regardless of their place of work, covered employment⁴ is composed of jobs located within the town regardless of the employees' place of residence. Covered employment increased by 5.7% between 2000 and 2007, reflecting the creation of 101 new jobs. This represents an average annual rate of job growth of slightly less than 0.82%, which is higher than the annual average of 0.23% experienced by Washington County during the same period. Total covered employment, by type of industry, is provided in Table 5.1.

⁴Covered employment includes only jobs covered by unemployment insurance and typically excludes self-employed persons.

Table 5.1 Employment by Sector					
Industry Title	2000	2005	2007	2000-2007	2000-2007
Agriculture, Forestry & Fishing	not published	0	0	n/a	N/a
Construction	52	47	56	+4	7.69%
Manufacturing	271	186	194	(-77)	(-28.4%)
Trade & Transportation	196	175	169	(-27)	(-13.77%)
Information	56	40	39	(-17)	(-30.36%)
Financial Activities	(np)	109	111	+2	1.83%
Professional & Business Services	47	77	77	+30	63.82
Education & Health Services	580	716	752	+172	29.65%
Leisure & Hospitality	254	257	265	+11	4.33%
Other services except public admin	45	32	33	(-12)	(-26.66%)
Federal Government	21	25	35	+14	66.66%
Education Services Town Schools	156	154	151	(-5)	(-3.20%)
Public Admin Town Offices	77	78	79	+2	2.59%
Total Covered Employment*	1,765	1,828	1,866	+101	5.72%
*totals include sectors not published due to small number of reporting business units Source: VT Dept. of Employment & Training Source: Vermont Department of Employment & Training					

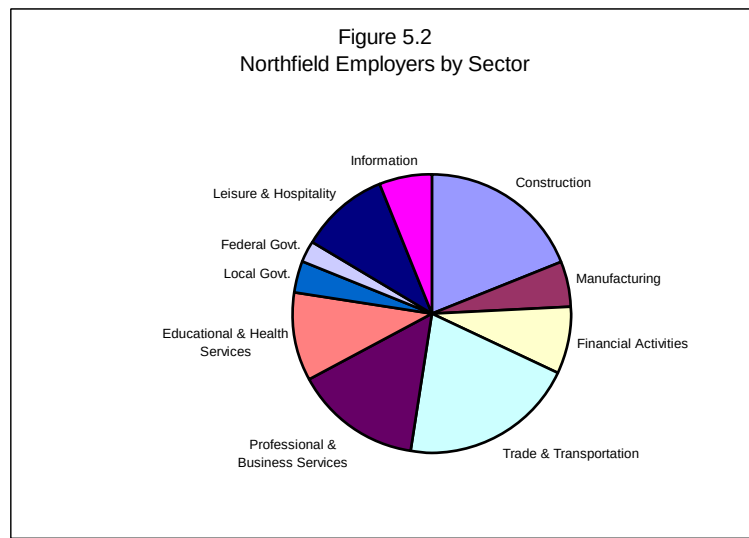
Most job growth during the 2000s occurred in the Education & Health Services, Professional & Business Services, Federal Government, and Leisure & Hospitality sectors. Education & Health Services, which accounts for over 40% of Northfield's total covered employment, experienced job growth primarily in local services. Manufacturing, which in 2000 accounted for 15.4% of total employment, it dropped to 10.39% in 2007. While Manufacturing lost the greatest number of individual jobs, Information experienced the largest percentage decrease during this period.

The broad services category accounts for nearly 39% of covered employment in the community. This category includes a variety of small businesses. In addition, Norwich University, the mainstay of the local economy, currently employs approximately 574 workers.

Local Employers

The total number of reporting units⁵, or *employers*, also decreased slightly in Northfield from 134 reporting units in 2000 (125 of which were private businesses) to 126 reporting units in 2007 (119 of which were in the private sector). Most of the increase in new businesses was in general services (+7) information (+2) and financial activities (+2), with manufacturing (-2), retail (-2), federal government (-2), other services (-10) and trade & transportation (-4) all showing a decline in the number of businesses operating in the community. The breakdown of all employers, by sector, is presented in Figure 5.2.

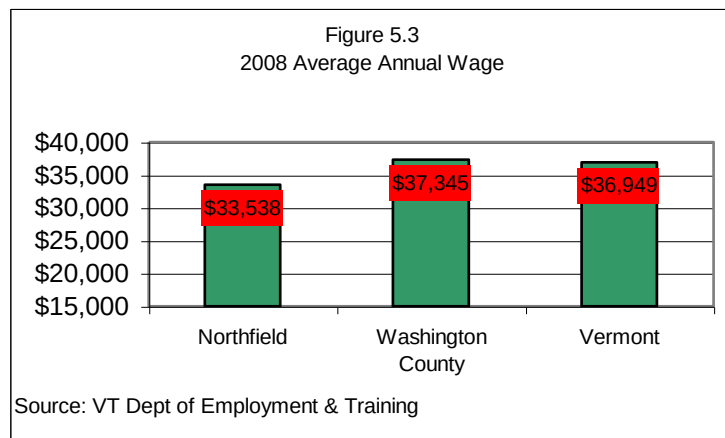
While Norwich University is the most important local service industry employer in terms of total jobs, there are an additional 46 service sector employers in town, making this the most dominant employer category. Trade & Transportation was second, with 24 businesses in 2007, and construction was third with 22 businesses primarily composed of tradesmen and small builders. Each of the other categories was composed of fewer than 10 reporting units.



Average Wages

The relatively slow rate of job growth in the community is coupled with lower than average wages compared with the county and state. In 2008, the average wage for covered workers employed in Northfield was \$33,538, or \$16.12/hour. This wage is less than 90% of the county and state average. Average annual wages for the town, county and state in 2008 are compared in Figure 5.3.

There is widespread concern in Vermont regarding the ability of full-time workers to earn an income sufficient to meet a family's basic needs. This is commonly referred to as a "livable wage." The Vermont Joint Fiscal Office has identified that an annual livable wage for a family of four with two working parents in 2009 ranged from \$18.75/hour average per earner (\$78,000



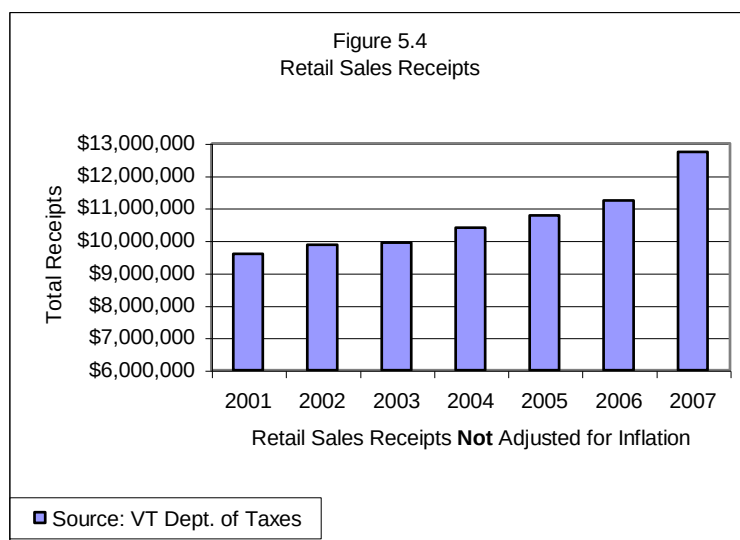
⁵ As is the case with covered employment, reporting units only include those businesses, agencies, and governmental entities that employ workers covered by unemployment insurance. It does not include sole proprietors or other exempt employers whose employees are exempt from unemployment insurance coverage.

household income) in rural areas to \$20.07/hour average per earner (\$83,491 household income) in urban areas. The range of a livable hourly wage for a single parent with one child ranged from \$23.04 to \$25.04, while that for a single person was \$16.41 to \$17.08.

Based upon the Joint Fiscal Office's study, many local wage earners may be earning less than a livable wage, especially if workers lack adequate health insurance coverage. Focusing economic development activities on the creation of well-paying jobs is especially critical in Northfield to ensure that local residents can meet their basic needs.

Sales Receipts

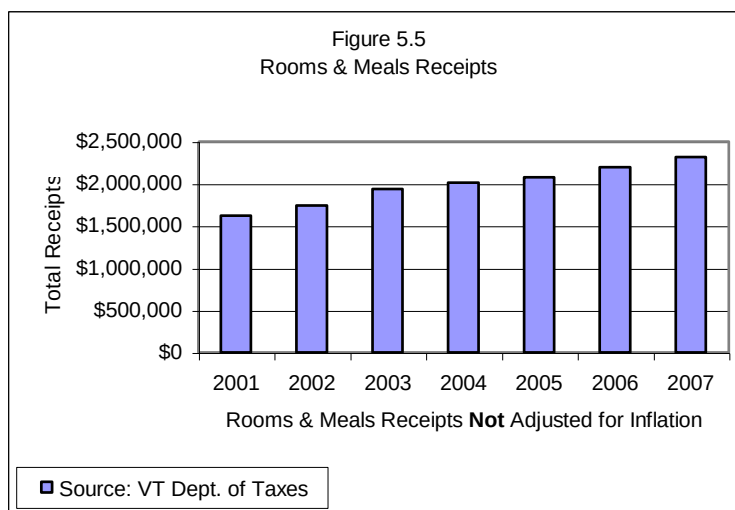
In addition to employment and wages, another useful measure of economic activity may be found in the retail sales, restaurant receipts, and commercial accommodation rentals generated by Northfield businesses. Figure 5.4 shows total retail sales receipts reported by local businesses for each fiscal year between 2001 and 2007.



Total retail sales receipts, not adjusted for inflation, increased a total of 24.71% between 2001 and 2007. In comparison, retail sales within the county increased nearly 25.6% during the same period. In 2001 retail sales in Northfield accounted for 3.3% of total retail sales in the county. In 2007, Northfield's share of the county total increased to 3.5%, indicating a greater share of the local retail sector relative to the county. This is a reversal from the decline in retail establishments sales receipts experienced in the community during the 1990s.

In addition to retail sales, the Vermont Department of Taxes also reports total lodging and restaurant sales that are subject to the state's rooms and meals tax. Total annual rooms and meals receipts for 2001 through 2007 are presented in Figure 5.5.

Rooms and meals receipts experienced annual growth similar to retail sales, although the net increase since 2001 was 29.87% (not adjusted for inflation). As was the case with retail sales receipts, rooms & meals receipts over the six-year period showed a steady increase.



5.3 *Economic Outlook*

Northfield's history is marked by economic diversity and innovation in responding to changing circumstances and opportunities. In recent years, however, economic activity in the community has lagged behind that of the county and state. Although a high percentage of town residents are able to work within the community, average wages remain below the county and state average and the rate of local job creation and business growth have remained relatively flat.

Although a detailed economic forecast was not prepared as part of this planning effort, there are several reasons for optimism regarding the community's economic outlook that may offset many of the concerns discussed above. The causes for optimism include several recent developments that combine to create a much stronger environment for community and economic development efforts. These include:

- Creation of the Bean Industrial Park and subsequent relocation and expansion of Cabot Hosiery;
- Construction of the Kreitzberg Arena at Norwich University;
- Construction of the new National Guard Armory and training facility on the Norwich campus;
- Recent and projected enrollment increases at Norwich University, coupled with the apparent stability of the school's employment base;
- Infrastructure improvements in the Village, including upgraded sidewalks to provide better access to the school and the planned creation of a small riverside park adjacent to the downtown;
- Renovation and expansion of the Brown Public Library and Governor Paine House complex;
- The transfer in ownership of the old Armory to Norwich University;
- Upgrade of the municipal water system, which tripled the system's capacity from 500,000 gallons per day (gpd) to 1.5 million gpd, and
- The upgrade of the municipal wastewater treatment facility.
- Electric upgrade

Any one of these projects is an enhancement to the community. Taken together, they serve to increase the community's capacity to accommodate additional growth in a well planned manner, attract new visitors to the community, expand cultural and recreational opportunities for residents and visitors, and reinforce the village as the community's commercial, civic and residential center. This can form the foundation for future economic and community development efforts.

Community & Economic Development

Effective community and economic development programs typically require the cooperation of a variety of groups and individuals. Most important is that municipal officials and local businesses communicate openly and work together in a cooperative and coordinated fashion. During the public forums in 2009, many participants suggested that the Northfield Business and Professionals Association ought to be revived, and ought to take on a leadership role in village revitalization and economic development.

In addition to local groups and individuals, several regional organizations are available to provide a range of assistance to local officials and businesses. Such organizations include the Central Vermont Economic Development Corporation, which assists with business recruitment, financing, and marketing, and the Central Vermont Revolving Loan Fund, which provides financial and technical assistance to local businesses that employ persons of low and moderate income. Other programs available to local businesses include various tax credits and property

tax abatement (from the education portion of the property tax bill) may be available through the Vermont Economic Progress Council, which grants incentives to eligible businesses.

To date, no comprehensive economic development strategy or program has been developed in Northfield. However, the increased emphasis on the community's economic needs has prompted local officials to assume a more active role regarding business development. Typically, successful economic and community development programs are tailored to meet the unique needs and opportunities present in a particular community. In the case of Northfield, opportunities that should be the focus of future economic development efforts include:

- Enhancing the vitality of the downtown
- Reuse and development of existing industrial and commercial facilities
- Continued support for Norwich University
- Targeted infrastructure development to maintain capacity for new development

Downtown Vitality

Northfield's earliest years were marked by the creation of four district villages. With the establishment of the woolen mill industry and subsequent opening of the railroad, Northfield (formerly "Factory") Village emerged as the town's dominant commercial, industrial, civic, and residential center. At the core of the Village is the downtown area, which is built around the historic common.

The economic vitality of the downtown is an issue of widespread public concern. The need to focus the community's attention and resources on the downtown was one of five top priorities identified during the January 2002 Northfield Community Visit sponsored by the Vermont Council on Rural Development. Participants at the community visit emphasized the need for a downtown planning committee and called attention to the *Northfield Village Downtown Plan*, prepared by the Cavendish Partnership in 1997.

The 1997 downtown plan specifically addressed many of the concerns and suggestions raised during the community visit. Based upon background analysis, community input, and market study, the downtown plan set forth a conceptual master plan that included several initiatives for improving the vitality and economic climate in the downtown. Key recommendations include:

- Enhancement of physical connections between the downtown and the University through the creation of walking/bicycle path along Dog River, and associated improvements to a University owned "eco-park."
- Better organization and more efficient use of the Northfield Business Park, with the objective of better integrating this area with the historic downtown.
- Redevelopment of the Cetrangolo parcel, which is well situated to serve as a cornerstone for downtown development efforts. While several possible uses for this parcel exist, downtown lodging facilities have been identified as priority by some local officials and business leaders.
- Greater viability of downtown retail establishments and related commercial services (e.g., restaurants, personal services) through a coordinated parking, lighting, and streetscape improvements.
- Improvement of the streetscape to maintain and enhance South and North Main Streets and the area around the Common.

Putting together a comprehensive package of improvements as called for in the downtown plan is an obvious challenge to the community. Fortunately, the Vermont downtown program makes available a variety of financial and technical resources to communities that plan for the revitalization of downtowns, villages, and community centers.

Since the downtown program was launched, 23 of Vermont's largest cities have secured downtown designation. The goals and benefits of the downtown program are not limited to cities, however, and many smaller village centers are also eligible. Nearly 80 villages have received village center designation. Designating a portion of Northfield Village as a downtown district would provide greater access to funding for a variety of infrastructure and capital improvement projects, and would allow for the town to recapture some tax revenues that would otherwise go to the state. The Select Board has authorized municipal staff to proceed with a Village Center Designation application.

Norwich University

Norwich University serves as an important economic engine within the community. Not only is the University the town's largest employer, but also the student population accounts for approximately 25% of the town's residents.

Employment levels are projected to stay roughly constant, with between 500 and 570 employees. As stated in Chapter 4, university officials have projected an increasing enrollment. Strengthening physical connections to the college with the development of a path along the Dog River should serve to enhance the vitality of downtown businesses.

With recent on-campus construction, including the Kreitzberg Arena and the National Guard's Regional Readiness and Technology Center, it is likely that the University will attract an increasing number of short-term, non-student visitors. Added traffic, including short-term visitors and larger student populations, should also support local retail businesses and related amenities, such as restaurants and lodging facilities.

Other physical improvements are currently underway as a part of the long range strategic planning process. Local officials have been involved in that process, and have maintained open communication with University officials on a variety of issues of mutual concern. Efforts to include the university in continuing discussions regarding community and economic development will ensure open communication, and also take advantage of the human resources that the University has to offer the community.

Finally, the presence of Norwich University, and its well-educated workforce, creates additional opportunities for economic development beyond providing educational services. Opportunities for collaboration between businesses, the municipality, and the university may strengthen local entrepreneurial efforts. Alumni, who remain committed to the University, and the community, may also be a resource that could benefit development efforts in Northfield.

Industrial & Commercial Development

Physical reminders of Northfield's industrial history are plentiful. The former Cabot facility, several buildings within the Northfield Business Park (railroad property) and the Nantanna Mill have been used and reused for a variety of industrial and commercial activities. In addition, the Bean Industrial Park, established in 1995, includes eight potential building lots served by municipal water and sewer. Additional land adjacent to the park is available for expansion. Anchoring the park on the only developed lot is the 53,000 square feet Cabot Hosiery facility, which was relocated from its former Main Street location with the assistance of a community development grant from the state.

The Bean Industrial Park, Nantanna Mill, and Northfield Business Park all offer a variety of facilities for the location and/or expansion of many types and sizes of industries and businesses. Presently, these areas are included in the regional database of available commercial and manufacturing space, and are marketed by the Central Vermont Economic Development

Corporation. The community has designated these areas as industrial sites within local zoning bylaws, which allow a wide range of commercial and industrial uses. In addition, all of these facilities are presently served by municipal water, sewer, and three-phase power, and have good access to Route 12, the state highway serving the community.

In addition to the sites in and around the Village, the town has designated land in the vicinity of the Route 12/Route 64 intersection as an industrial district under current zoning. The intent of this designation was to take advantage of the area's convenient access to I-89 (via Route 64). Steep terrain, the lack of municipal water and sewer, and the predominance of single-family homes in the vicinity may, however, undermine the potential transportation advantages.

Infrastructure Improvements

Issues associated with community facilities and services are addressed in detail in Chapter 7, and transportation is addressed in Chapter 6. The local economic climate is, however, partly dependent upon the availability of infrastructure, including transportation facilities. It is critical that planning for community facilities, transportation and land use be integrated with the community's economic development goals.

Several infrastructure needs associated with the downtown were described above. Examples of other key considerations in Northfield, which are addressed elsewhere in this plan, include improvements to Route 12 north of the Village to provide a safer, more efficient highway access to the Barre-Montpelier area; protection of the municipal water supply from potential contamination; and, upgrade of the wastewater treatment facility.

Finally, it should be noted that business decisions regarding location or expansion are made by entrepreneurs who may be influenced as much by the amenities, or quality of life, offered by a particular community. Maintaining Northfield's unique character, ensuring that the community is a pleasant place to live, work and go to school may be the most important economic development policy the community can pursue.

5.4 Economic Development Goals, Policies & Tasks

Goal

A strong local economy, characterized by: 1) well-paying jobs for area residents, 2) a vibrant downtown, 3) business opportunities for local entrepreneurs, and 4) a broad tax base.

Policies

1. Encourage strongly the expansion of existing businesses, and establishment of new businesses that pay a livable wage and reinforce the community's historic settlement pattern.
2. Expand municipal efforts to plan for and promote economic and community development, including efforts to:
 - Improve the local economic climate and quality of life;
 - Support the expansion of existing businesses;
 - Recruit new businesses to the community which are compatible with the goals and policies of this plan;
 - Focus efforts to strengthen the vitality of the downtown;
 - Identify and secure funding sources from regional, state, federal and private sources to support community development activities;

- Strengthen relationships between existing businesses to create an environment of mutual reliance in the community.
- 3. Support reinvestment and revitalization of downtown properties to enhance the economic vitality of the downtown as the community's civic, cultural, and commercial center. To this end, the implementation of the Northfield Village Downtown Plan is strongly encouraged.
- 4. Encourage additional industrial development within the Bean Industrial Park.
- 5. Continue to support regional development organizations to the extent that those organizations are serving the needs of local businesses and are making a positive contribution to enhancing Northfield's economic climate.
- 6. Reinforce Northfield as a destination for visitors by encouraging the development of a downtown hotel, to be designed to enhance the area's pedestrian-scale and urban fabric.
- 7. Reinforce, through the capital budgeting and facility allocation policies, existing land use and development policies by focusing economic activity in designated village centers, industrial districts and Norwich University.
- 8. Support the efforts of restaurants and other food services to serve locally produced foods.
- 9. Promote the local production of agricultural products and energy sources to make Northfield more self-sufficient and ensure long-term employment that meets basic needs.
- 10. Leverage the expertise of Norwich professionals and alumni as a source of ideas, capital, and innovation to provide the municipality with a long-term strategy for developing new businesses and attracting entrepreneurial capital. Potential projects for partnership include training for small businesses and advanced training for public school teachers.
- 11. Support the work of local artists to strengthen the local economy, consistent with national trends showing the creative economy as a growing sector.
- 12. Expand and enhance telecommunications network throughout the municipality to ensure that residents and businesses have the tools to succeed in the global economy.
- 13. Consider ways to more effectively utilize the rail line and the interstate highway exchange; these continue to be vital connections for economic activity.

Tasks

1. Explore designation of the Village as a Village Center, and eventually as a Vermont Downtown Development District. [Planning Commission, Staff]
2. Revitalize the Northfield Business and Professional Association to help enact many of the strategies in this plan, such as the following tasks.
 - Strengthen and expand the farmers market to encourage consumption of local agricultural products.
 - Develop a calendar of events that draw visitors (such as the sock sale, Labor Day, and Norwich sporting events), and capitalize on these opportunities to make the municipality a travel destination.

- Partner with other communities in the region to develop a self-guided Covered Bridges tour.
- Identify prime undeveloped land or underutilized properties for potential commercial use; ensure the zoning is appropriate; work with the regional economic development staff to produce marketing materials for these parcels. [Municipal Manager]

Chapter 6 Transportation

6.1 Overview

Northfield's historic development has been shaped by transportation, especially the railroad in the 19th century followed by the automobile in the 20th. The location, condition, and capacity of the regional transportation network and transportation facilities and services continue to influence Northfield's land use patterns, economic development, and the use of resources. This chapter provides an overview of how the existing transportation network functions and how it might be improved.

6.2 Travel Patterns

As is the case throughout Vermont, the private automobile is the dominant mode of transportation in Northfield. According to the 2000 Census, 68.6% of Northfield's labor force commuted to work in a single occupancy vehicle (i.e., they drove alone). A relatively high percentage (14.7%) walked to work, while 12.3% carpooled. Less than 1% bicycled on a regular basis, and 3.0% worked at home. The average commute in 2000 was 21.1 minutes (up from 18.9 minutes in 1990).

As mentioned in Chapter 5, nearly half of Northfield's labor force worked in town in 1990 (the last year for which data is available), while the majority of those commuting out of town headed to Montpelier, Barre City or Town, or to Berlin. Given this reliance on the automobile, the location and condition of the town's highway network is of primary concern when considering Northfield's transportation network.

6.3 Roads & Highways

Northfield has over 93 miles of public highways, including over 82 miles of municipal roads. A breakdown of roads, by classification, function, and location, is presented in Table 6.1.

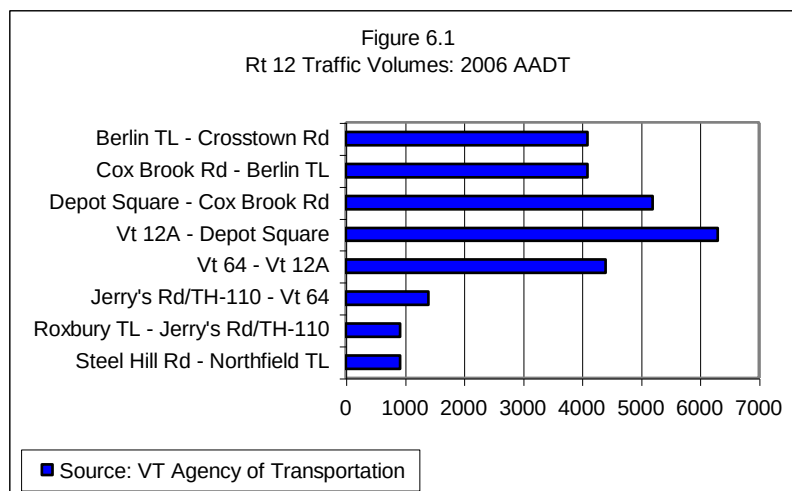
State Highways

The principal arterial highway serving Northfield is Route 12, which follows the Dog River and connects the community with Berlin, Montpelier, and several important transportation corridors to the north, and Randolph to the south. Route 12A diverges from Route 12 just south of Northfield Village and provides access to Roxbury before rejoining Route 12 at Randolph. These highways run parallel

Table 6.1 Mileage Summary of State & Local Roads		
Classification	Function	Mileage
State Highway	Arterial	11.1
Class 1 (Village)	Arterial/Collector	1.2
Class 1 (outside Village)	Arterial	0.9
Class 2 (Village)	Collector	0
Class 2 (outside Village)	Collector	4.8
Class 3 (Village)	Local Access	9.5
Class 3 (outside Village)	Local Access	57.47
Class 4	Access/Recreation	8.34
	TOTAL	93.7

to one another until they re-converge in Randolph. Route 12A provides access to the neighboring Town of Roxbury.

Traffic volumes on Route 12 are heaviest in the Village, especially in the vicinity of Depot Square. The highest volumes outside of the Village are along the segment of highway between its intersection with Route 12A and Route 64 – which provides access to Interstate 89 – and north of the village into Berlin. Traffic south of the Route 64 intersection is relatively low (see Figure 6.1).



Traffic on Route 12 to the north of the Village has declined in recent years, with the Average Annual Daily Trips (AADT) between Depot Square and Cox Brook Road declining from 5,600 trips in 1986 to 5,200 trips in 2006, a reduction of 7.1%. North of Cox Brook Road, the AADT declined from 4,950 trips to 4,600 trips in 2006, a reduction of over 7%. Volumes south of the Village, however, have increased over the same period. Most significant has been the

increase in traffic volumes along the segment of Route 12 from its junction with Route 12A to the intersection with Route 64, which has increased 21.2% from 3,640 trips in 1986 to 4,400 trips in 2006, indicating that a growing number of motorists are opting to use I-89, rather than Route 12, for out-of-town travel.

Although Interstate 89 brushes Northfield, Exit 5 is located just east of the town boundary in Williamstown. This important highway is accessed via Route 64, a limited access highway constructed as part of the interstate highway system. Route 64 intersects with Route 12 approximately 2.7 miles west of Exit 5. Traffic on Route 64 has increased steadily in the past 15 years. According to VTrans, traffic along the portion of highway between Route 12 and the Williamstown town line increased from 1,630 trips in 1986 to an estimated 3,400 trips in 2006 – an increase of 86%.

Traffic on Route 12A has also increased, with traffic volumes in 2006 estimated to have reached 2,700 trips between Lovers Lane and Stony Brook Road (TH-8), and 1,600 trips between Stony Brook and Little Northfield (TH-61). These changes, along with increased traffic volumes on Route 64, indicate the growing importance of Route 12A and Lovers Lane as key connections to I-89 from Northfield and surrounding communities.

The 2008 pavement condition on each of the three state highways is rated as poor or very poor, except a short section of Route 12 near the Berlin town line. No major construction projects or highway upgrades are presently included in the State Transportation Improvement Plan (STIP). The condition of Route 12 north of the Village raises concerns regarding traffic safety, access, storm water drainage, and potential disincentives for future economic development in the community. The portion of the road in the vicinity of Northfield Falls is characterized by:

- Narrow shoulders and inadequate bicycle lanes
- Several sharp curves
- Poor drainage
- Pavement in poor condition
- Numerous locations with restricted sight distance, and
- Ledge outcroppings within the highway right-of-way which inhibit sight distances and pose a risk to motorists, prevent the installation of bicycle lanes and make snow removal difficult which exacerbates potential safety hazards

Some ledge was removed in 2008, which has somewhat mitigated associated concerns. The town would like to continue to work with VTrans to develop a plan to upgrade this section of highway, including some widening and/or straightening of travel lanes and shoulders, ledge removal and the installation of traffic calming to mitigate potential adverse impacts of such an upgrade.

Municipal Roads

Northfield maintains approximately 82 miles of local roads. These include heavily used regional collectors, quiet streets serving village neighborhoods, lightly used rural roads providing access to a few homes, and a few roads not maintained for year-round traffic. The road network includes 24 bridges over twenty feet long (five in the Village), including six covered bridges (one privately owned) addressed separately below. Four of the bridges over twenty feet long are rated “structurally deficient” by VTrans, and six are rated “functionally obsolete”. No town bridges are included in the 2008-2011 STIP for replacement or rehabilitation.

In Vermont, municipal roads are designated as Class 1, 2, 3, 4, or trail. Class 1 roads include all state highways under the jurisdiction of municipalities – typically state routes through village centers. Class 2 and 3 roads are defined for the purposes of state aid and must be negotiable, under normal conditions, year-round by a standard passenger car. The state determines which town roads are Class 2: roads which typically provide access to neighboring towns. Class 4 roads are not generally maintained on a year-round basis. Class 3 and 4 roads are designated by the local Select board. Roads are shown by classification and surface type on the Transportation Map. Currently, 12 miles of town road outside of the Village are paved, and all but one mile of road in the Village is paved.

Until 1997, VTrans applied the national American Association of Surface and Highway Transportation Organizations (AASHTO) highway design standards to roads in the state. In response to growing concern that AASHTO standards were inappropriate for Vermont’s small villages and rural settings, the state prepared and adopted *Vermont State Standards for the Design of Transportation Construction, Reconstruction and Rehabilitation of Freeways, Roads & Streets*. These include standards for roads serving urban, village, and rural contexts that are designed specifically for Vermont. These standards should be applied to future upgrade and construction of state, town, and private roads in Northfield.

Although Northfield’s roads are generally in good shape and adequate to accommodate current traffic volumes, several improvement projects are planned to address existing deficiencies. Projects listed in Table 6.2 are included on VTrans “Transportation Improvements Projects”

Table 6.2 Summary of Road & Highway Improvement Projects			
Projects on VTrans TIP	Description	Schedule	% State Funding
Bridge #46/TH29	Replace bridge over Union Brook	Completed	90%
Bridge #54/TH12	Replace bridge over Cox Brook	Completed	90%
Bridge #50/TH25 & Bridge #34	Reconstruct bridge over Stony Brook	Unscheduled	90%
Bridge #59/TH60	Reconstruct bridge over Stony Brook	Unscheduled	90%
Projects identified by municipality	Description	Schedule	
Lovers Lane upgrade	Upgrade to accommodate Rt. 64 – Rt. 12A cut-off	Unscheduled	State share
Main Street bridge	Reconstruct bridge over Dog River	Unscheduled	State share
Route 12/Northfield Falls	Ledge Removal/install Bike Lanes & Sidewalk	Unscheduled	State project
RT 12 Northfield Center	Construct Bike Lane & Sidewalk	Unscheduled	State project

(TIP) list and are in some stage of project design and scheduling. Other projects identified by the municipality but not included on the TIP are also shown.

For the most part, identified improvement projects include the rehabilitation or replacement of bridges. These improvements are part of an aggressive effort on the part of the town over the past several years to upgrade several deficient bridges. It is anticipated that these projects are eligible for the states town highway bridge program, which provides 90% state funding. The town has allocated money in reserve funds on an annual basis to fund bridge improvements. Northfield has 45 bridges on the Town and Village Highway System. Adequate funding and maintenance should be continued.

Other projects, including the proposed ledge removal on Route 12 North and the need to upgrade Lovers Lane to accommodate increasing through traffic using this road as a short cut from I-89 to Route 12A south to the Roxbury Mountain Road, would need to be undertaken by VTrans under a different funding program. Both of these projects should, however, be supported, and funded by VTrans because they are either part of, or directly serve, the state highway system. The Lovers Lane project is especially critical to the community, given its use as a regional connector.

In addition to existing deficiencies, it is important that the municipality monitor development to ensure that the local road network is not overburdened by anticipated growth in the community. An effort to monitor traffic and road conditions on an ongoing basis, and standards to identify and mitigate the impacts of new development on the road network, can avoid future problems.

Covered Bridges

The five covered bridges in public use in Northfield deserve special note. Three of these bridges are located along a half-mile segment of Cox Brook Road, which is the highest concentration of covered bridges along any road in Vermont. Each of the five bridges continues to provide the function they were designed for in the 19th century, which not only contributes to the community's character but also represents a wise financial investment. Two of the bridges recently underwent minor repair, including new roofs in 2002, and no major upgrades are anticipated in the near future other than routine maintenance. It is important that there be

continued protection from damage caused by overweight and/or oversize vehicles. All of Northfield's covered bridges are historic structures and are now eligible for federal funding to cover the cost of future rehabilitation.

Road Maintenance

Maintaining and enhancing the local road network in a safe and cost effective manner is an important community responsibility. The town highway department is responsible for maintaining both town roads and village roads; village road maintenance is funded through an annual contract with the Village. The total cost of road maintenance to the town is second to education in terms of annual expense to the community.

In 2008, the town budgeted \$977,750 for the highway department, of which approximately \$622,170 was funded through town property taxes, \$199,050 through a maintenance agreement with the Village, and \$115,000 through state highway aid and miscellaneous fees and interest.

The highway department is based out of the town garage, located off Route 12 just north of the Village. In addition to the highway department, the garage also houses the Ambulance Service and provides storage for other municipal departments and social service agencies. Recent renovations included a roof replacement, new garage doors, and a new heating system. With the exception of the need for some site work, including resurfacing the parking and work-area around the garage, the facility is adequate to meet the foreseeable needs of the community. Covered sand & salt storage will soon be required.

There is an ongoing need for a stable and affordable source of gravel to maintain the town's roads (almost all Village roads are paved). Fortunately, there are local vendors that have minimized the high cost of hauling that has driven up the cost of gravel in other communities. The long-term availability of gravel, however, is not guaranteed. The town may want to consider the acquisition of a gravel source to avoid future gravel shortages and/or severe price fluctuations.

To stabilize expenditures from year to year, the town maintains reserve funds for capital improvements, including road construction, reconstruction and paving, bridge repair and replacement, and equipment replacement. In addition to road and bridge projects described above, the current capital improvement plan replaced the town's 1987 grader in 2004 and the 1994 dump truck in 2004.

Highway Access Management

The frequency, location, and design of highway accesses and curb cuts for driveways and parking lots have a direct bearing on the safety and efficiency of both town roads and state highways. The design of curb cuts also is important with regard to storm water management and road maintenance. Managing access can improve safety and better maintain highway capacity over time. Several techniques may be applied through Northfield's zoning regulations, road policies and ordinances, and additional land use regulations (e.g., subdivision regulations). These include requirements for:

- Minimum sight distance at a driveway or street intersection,
- Maximum number of driveways per lot,
- Mandatory shared driveways,
- Maximum width of curb-cuts,
- Minimum and maximum driveway lengths,
- Minimum or maximum on-site parking, shared-parking, and parking design,
- Minimum area for loading and unloading, and
- Landscaping and buffers to visually define and enhance access points.

Local development regulations (e.g., zoning, subdivision regulations) and road ordinances are effective tools to manage access. Future attention to access management, and the implementation of the strategies listed above, will enable local boards to balance the needs of motorists, pedestrians and bicyclists and improve highway safety and efficiency.

Traffic Management & Traffic Calming

As stated above, state and local roads are generally adequate to meet current demand. Over time, however, traffic volumes are likely to increase due to the cumulative impacts of ongoing, small-scale development. Efforts to monitor traffic volumes on an ongoing basis would help the community plan for future capacity deficiencies.

One category of techniques to maintain relatively slow traffic speeds in settled areas, enhance pedestrian safety, and improve the overall environment is often referred to as traffic calming. Such techniques include narrow vehicle traffic lanes, wide sidewalks, medians, on-street parking, roundabouts, raised and/or textured crosswalks, bulb-outs, street-tree plantings, and street furniture. Traffic calming is especially important along state highways and town roads in Northfield Village, Northfield Falls and in Northfield Center.

6.4 *Parking*

Downtown parking

Public parking in downtown appears adequate to meet current demand. Better management and/or organization might make more efficient use of available space. Since current demand increased, however, the Village and local businesses needed to explore options for expanding parking. One major cause of increased demand came as a result of Norwich acquiring and occupying the old armory building. To satisfy the increased demand, a piece of ground behind the Legion was purchased and the Holland Place parking lot was created (approx. 30 spaces). Also, with the construction of the new police station, additional parking is available next to the station.

The Central Vermont Regional Planning Commission (CVRPC) has assisted other communities in the region to study parking demand and availability in villages and downtowns, and may be available to assist Northfield with the preparation of a downtown-parking plan. Such a plan should look at existing and anticipated demand, the current use of available spaces and, if appropriate, alternatives for creating additional public parking opportunities.

Outside of the downtown area, land uses that require access by employees, customers, residents, and/or visitors are required to provide off-street parking adequate to meet anticipated demand. Current parking requirements should be reviewed to determine whether existing standards are sufficient. In addition to the number of spaces required, the location, configuration, and design of parking facilities can have a significant impact on the community's character, as well as on the safety of motorists and pedestrians. As the population ages more handicapped parking should be considered.

Residential Neighborhoods

One issue of special concern is the extent to which the conversion of single-family homes in historic neighborhoods to multi-family housing (in particular, high-density off-campus student housing) can limit the availability of on-street parking. The Town and Village presently enforce a parking ordinance to minimize such impacts, and zoning standards could require that adequate off-street parking is provided for all dwelling units. The continued update and enforcement of these tools should avoid problems for residents and homeowners in Village neighborhoods.

Commuter Parking

The only formal commuter parking lot serving local residents is located adjacent to Exit 5 of I-89 in Williamstown. VTrans is planning to upgrade and expand this facility in the coming years, which should benefit Northfield commuters. The town, in conjunction with the Central Vermont Regional Planning Commission, should also explore the feasibility and benefits of establishing a small commuter lot within the Village to serve commuters headed north on Route 12 or west to the Mad River Valley.

6.5 *Pedestrian & Bicycle Circulation*

In Northfield Village, where historic settlement patterns reflect a pedestrian scale and orientation, an extensive sidewalk network exists. The presence of the existing sidewalk network has a significant impact on traffic volumes, as indicated by the nearly 15% of local commuters who walk to work, a rate that is significantly higher than the 5.2% of commuters who walk to work statewide.

In recent years, many sidewalks that had fallen into a state of disrepair were upgraded, and some key sidewalks were extended to strengthen pedestrian connections. Recent improvements include the extension of sidewalks to the school, which provides better access for students. This project was funded in part through a VTrans enhancement grant.

The extension of the existing sidewalk system, and/or the creation of connected walking and bicycling paths outside of the Village, could decrease congestion and increase options for local residents, including children, students, and the elderly. A priority connection is a multi-purpose path linking Memorial Park with Northfield Falls Recreation Fields. Such a path, which would preferably run parallel to Route 12 outside of the highway right-of-way, would also provide a connection from the Village to the Bean Industrial Park. Another possible connection would involve the construction of a path adjacent to the Dog River, providing an additional link from the village to Norwich University. This was recommended in the downtown study.

There are no sidewalks outside the village. Most of Northfield's rural roads, both paved and unpaved, have little or no shoulder. Because of generally low traffic volumes and vehicle speeds, however, they are generally safe for walking and bicycling. Future increases in traffic volumes or speeds could result in safety concerns. One opportunity to expand walking and cycling opportunities outside of the village includes the expansion of bicycle lanes, or construction of an off-street bicycle path, along Route 12 and Route 12A concurrent with the planned extension of municipal sewer lines and drainage improvements.

6.6 *Transit & Public Transportation*

Local Transit

In addition to providing increased service to seniors and individuals with disabilities, GMTA has worked diligently in the 2008 fiscal year to support the growing need of transportation for the community at large. Through our efforts, we secured funding from the State of Vermont to support a free one day per week shuttle, available to all within the community. The Northfield Community shuttle, which began operation January 7, 2009, is designed to transport people to the local Grand Union grocery store, the area food shelf, the food stamp outpost, the Northfield Green Mountain Clinic, the pharmacy and any other Northfield location upon request.

GMTA will not only provide an easily accessible route for all Northfield residents, but we will also provide a deviation service which can pick up/drop off people directly at their home, all at no charge to the rider. The municipal government should monitor use of this shuttle service to understand how Northfield residents' transportation needs might be better met in the future.

Regional Transit

Green Mountain Transit Agency (GMTA) is a private, non-profit agency providing a range of public transportation services in Washington, Lamoille and Franklin Counties and towns of Orange, Williamstown and Washington in Orange County. GMTA is a full service public transportation provider offering fixed route, deviated fixed route and demand response bus services, commuter routes, shopping shuttles, meal site service, Medicaid transportation, Reach Up transportation and transportation services for the elderly and the disabled. The GMTA enhances the quality of life in central Vermont by delivering safe, convenient and more environmentally efficient transportation solutions.

The GMTA receives funding from the State of Vermont, the Federal Government and local support from the 25 municipalities in which we provide service. Local municipal fund requests are based on a fair share equation using general population, elderly and disabled population, percentage of low income residents and the type of services provided. Through a contractual relationship, GMTA is managed by the Chittenden County Transportation Authority (CCTA), Vermont's largest and only public transportation authority.

GMTA provides medical transportation service to those who qualify for either Medicaid, Elderly and Disabled funds, or both. We offer those in need the scheduling and payment of rides and provide service through volunteer drivers or bus and/or cab service. GMTA collaborates with area organizations, such as the Central Vermont Council on Aging, to offer rides for medical treatment, meal site programs, senior center and shopping trips. GMTA not only provides the means of transportation, but also the administration and operational skills required to coordinate service.

Inter-Regional Bus Service. The nearest long distance bus services are provided by Vermont Transit, which stops in Montpelier and Barre. Vermont Transit provides bus service to major cities primarily north and south of Northfield along the I-89 corridor. Changing demands for public transit may increase the viability of regularly scheduled bus service between Northfield and Montpelier and Burlington. The interest in this service was noted in the public forum on transportation in 2009.

Rail Service. The New England Central Railway, Inc. owns and maintains the railroad network through Northfield. Historically, the railroad provided important freight service to Northfield industries, although such use is presently limited. The availability of freight service, however, has the potential to influence the location of future industries

Amtrak presently provides passenger train service. The *Vermont* provides daily service to and from New York and Washington D.C., with trains departing mid-morning and returning in the evening. Although the trains travel through Northfield, the nearest scheduled stops are in Montpelier and Randolph. Given the high student population and likelihood that transient visitors to Northfield will increase in the coming years, Amtrak should include scheduled service to the Village. Respondents to the survey and participants in the public forums in 2009 strongly supported the creation of an Amtrak stop in the village.

Air Transport. The Burlington International Airport (BIA), located in South Burlington, provides regional and international airline service. BIA has expanded both facilities and service in recent years. Manchester, N.H., airport also provides regional and international flights. Due to service from discount airlines, the Manchester airport has become popular with Vermont travelers. Commercial service also is provided by the Knapp Airport in Berlin.

6.7 Transportation Goals, Policies & Tasks

Goal

The maintenance and enhancement of an efficient, cost effective, and multi-modal transportation network to serve the needs of Northfield residents, visitors, and businesses

Policies

1. The Town and Village road systems should continue to be maintained in a manner that maintains safe and efficient traffic conditions for current and future demand.
2. Major road improvements and associated capital improvements will continue to be scheduled through the municipal capital budgeting program, and securing alternative funding sources to finance transportation projects will remain a priority of the town.
3. New roads, including private roads serving new development, shall be constructed to the *Vermont State Standards for the Design of Transportation Construction, Reconstruction and Rehabilitation of Freeways, Roads & Streets*. Construction to such standards, however, does not obligate the Town or Village to take over new roads. Decisions on the acceptance of new roads shall be at the discretion of the Village Trustees or Town Selectmen. Private roads will only be accepted if it is clearly in the public interest and will not place an undue burden on local taxpayers and meet the required standards.
4. Northfield's five covered bridges not only serve an important transportation function, they contribute to the community's heritage and unique character. These bridges should be maintained to continue serving their historic function.
5. To ensure pedestrian safety and the long-term efficiency of the local road network, access to state and local roads should be carefully controlled and existing deficiencies (e.g., excessive or oversized curb-cuts) eliminated.
6. New development shall not adversely impact traffic or pedestrian safety or result in a significant decline in the level of service of the impacted road network. The cost of mitigation to avoid such impacts will be the responsibility of the developer.
7. Northfield's transportation needs should be considered when decisions regarding the regional and statewide transportation network are discussed and enacted. These transportation needs may change as a result of increasing fuel costs and the aging of the population.
8. Road improvements and development projects in Northfield Falls, Northfield Village, and Northfield Center should maximize pedestrian safety through site design and traffic calming.
9. Safety improvements to Route 12 north of Northfield Village should be implemented, to include additional ledge removal, road widening, and the installation of pedestrian/bicycle lanes.
10. Lovers Lane, which is subject to deterioration due to through traffic accessing I-89 to and from Route 12A south of Northfield, should be upgraded and maintained with the assistance of the VTrans.
11. Encourage shared-transit opportunities for local commuters.
12. The provision of an integrated and well maintained pedestrian and bicycle path network in and around the Village is a key feature of the local transportation network. This

system should be expanded through path connections from Memorial Park north to Bean Park and Northfield Falls and south along the Dog River to Norwich University.

13. Parking in residential neighborhoods shall be controlled to prevent nuisances to residents of those neighborhoods stemming from excessive on-street parking.
14. New development should provide adequate off-street parking to accommodate employees, residents and/or patrons, unless the development is located in an area where alternative parking exists (e.g., off-site parking lot, on-street parking).
15. If feasible, passenger rail service (Amtrak) should be re-established with a stop in Northfield Village.
16. The feasibility of installing sidewalks in Northfield Falls and Northfield Center should be studied.
17. Improvements should be continued on the Village Common.
18. Determine whether it is possible to make additional, multi-purpose use of school buses and other multi-passenger vehicles.

Tasks

1. Continue to designate a representative to the Central Vermont Regional Planning Commission's Transportation Advisory Committee (CVRPC-TAC), and be active in transportation proposals. [Selectmen]
2. Seek to have local project priorities identified in this plan placed on the regional and state Transportation Improvements Project (TIP) lists. [CVRPC-TAC representative]
3. Continue planning for pedestrian path improvements, and solicit Agency of Transportation funding assistance under the Enhancements Project Grant Program, Safe Routes to School grant program, and other relevant funding opportunities. [Staff]
4. Explore the feasibility of regional bus service, and negotiate with relevant entities to develop a contract to provide a stop in Northfield. [CVRPC-TAC representative, Staff, Selectmen]
5. Review existing land use regulations and consider whether revisions are needed to ensure that:
 - New development will not overburden local roads;
 - Adverse impacts to pedestrian and traffic safety will be mitigated or avoided;
 - Development within designated village centers will maintain pedestrian safety; and
 - New roads will be constructed in a manner that meets minimum standards so that roads are laid out in a manner that creates an interconnected road network.[Planning Commission]
6. Continue to review municipal road policies and make revisions as needed to manage access in a manner that maximizes highway safety and efficiency and eliminates, over time, existing deficiencies. [Selectmen, Staff]
7. Reduce barriers to bicycle and pedestrian circulation in and around the villages by implementing zoning and road maintenance policies that support these modes of transportation. [Planning Commission, Selectboard, Highway Superintendent]
8. Monitor the usage of the new shuttle service to characterize the transportation needs it addresses, and include it as part of an overall strategy to reduce dependence on single occupancy vehicles. [Municipal Manager, Selectboard]

Chapter 7 Community Facilities & Services

7.1 Overview

The Town and Village of Northfield provide or support a full range of municipal services to local residents and businesses. Each facility or service addresses a particular public need, which is partly determined by demographic and economic conditions. During public forums to consider Northfield's future, the participants highlighted the importance of community services in supporting new economic development. As community dynamics and economic conditions develop, the municipality must manage these services with the goal of enabling local businesses to pursue emerging opportunities.

During all of the public forums held in 2009, participants suggested that closer coordination of Norwich University and municipal planning could result in the development of enhanced local services and programs. University staff has expertise to contribute to the municipality's efforts to address potential future challenges. A public survey of nearly 250 residents showed that 80% recognize the value of increased coordination between the university and the municipal government.

This chapter briefly describes existing facilities and services and their respective capacities. It also describes associated costs and factors underlying municipal or public financing. Consideration of the capacity of existing facilities and services in relation to associated costs provides the foundation for shaping growth so that desired levels of service are maintained or enhanced without placing an undue financial burden on taxpayers.

7.2 Municipal Government

Northfield consists of two municipal entities: Northfield Town, which encompasses all land within the municipal boundaries; and Northfield Village, incorporated in 1855, which is located in the center of the town. Village residents vote in both the town and village, and village landowners pay property taxes to both entities. Northfield's other historic villages were never incorporated as separate municipalities.

The town and village have achieved a high degree of cooperation over the years, and presently share many services and facilities. The town is governed by an elected five-member Board of Selectmen, while the village is governed by an elected five-member Board of Trustees. Both entities have a municipal manager form of administration and have opted to share a single Town/Village Manager for several years.

The town is responsible for emergency services (see below), recreation, planning and zoning, maintenance of property records and, under contract with the village, highway maintenance. The village operates the water and sewer facilities and electric utility (see Chapter 9). Most services that are open to the public, including the manager, town clerk, zoning administrator, public works supervisor and utility office are located in the municipal building on Main Street. The municipal building is owned by the village and is partly supported by rent paid by the town. Other services and facilities are located in and around the village (see Facilities Map).

Like most Vermont communities, Northfield is heavily reliant on citizen volunteers for many important government functions. In addition to the two governing bodies, the following town and village elected positions include:

- Town & Village Moderators
- Delinquent Tax Collector
- 5 School Directors, and

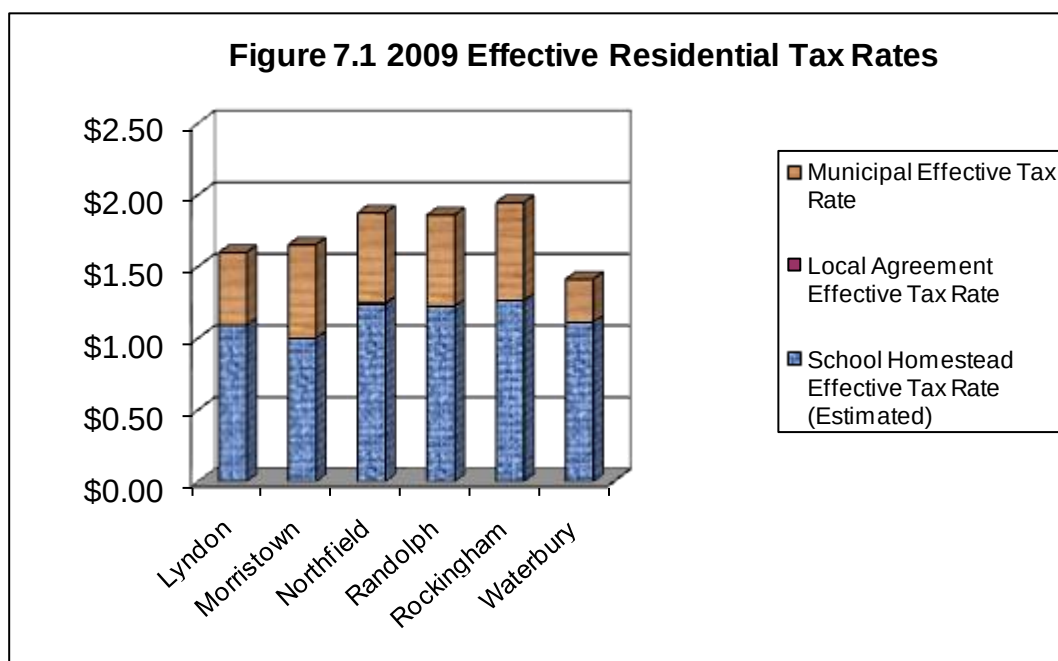
- Town Clerk/Treasurer
- 3 Listers
- 14 Justices of the Peace
- Village Clerk/Treasurer
- 7 Library Trustees

In addition, several appointed positions depend upon volunteers to fulfill municipal functions, including a five-member planning commission, five-member board of adjustment and seven-member recreation board.

Cost of Government

An issue of particular concern to Northfield residents is the local property tax burden. Partly as a result of Act 60, local education taxes in Northfield are comparable to those of surrounding communities (see Chapter 8).

Municipal taxes, however, are generally higher than in neighboring communities. This is largely due to the fact that Northfield residents enjoy a higher level of municipal service than most neighboring towns. Such services include a full-time police department, recreation facilities (including a municipal swimming pool), staffed fire and ambulance services, and exceptional road



maintenance.

When compared with municipalities that share similarities with Northfield (such as a comparable population, the presence of a large tax-exempt property owner, an incorporated village, and/or a community that provides a broad range of public services and facilities) local tax rates are not unusual. A comparison of effective tax rates in selected municipalities that share with Northfield one or more of the aforementioned features is presented in Figure 7.1.

Northfield's tax rate is higher than those of neighboring communities because the Grand List includes a higher than average percentage of properties that are exempt by law from property taxes. The 2009 Annual Report of the Division of Property Valuation and Review states that

Northfield has \$150,879,591 worth of real estate exempt from the property tax, and only \$326,980,000 worth of taxable property. Almost one-third of the property in the municipality is tax-exempt, so the full burden of municipal and education services falls on the owners of only two-thirds of the property. Maintaining the balance between the obvious benefits of the university and the demand for services it places on the community will be an important component of the town's ability to continue providing quality services without overburdening local property owners.

In addition, strategies aimed at promoting additional economic development, especially the creation of new industrial facilities in established industrial parks and the revitalization of the downtown (Chapter 5) should serve to expand the municipal grand list, thereby spreading the tax burden among a greater number of taxpayers. It should be noted, however, that few Vermont communities have managed to "outgrow" a heavy tax burden. Development strategies should be broadly focused on promoting activities that pay high wages and enhance the local quality of life, in addition to expanding the tax base.

Northfield has sufficient capacity in infrastructure and services that additional development could increase the tax base without the need for additional spending to increase the level of services. This is true at least for sewer, water, school, and electricity.

Another important strategy for financing public facilities and services as efficiently as possible is generating alternative, non-tax revenues. The town and village have been aggressive in pursuing a range of grant programs from such sources as the Vermont community development program, VTrans enhancements program, VTrans local bridge program, Vermont municipal planning grant program, and other project-specific grant programs. In addition, the community has demonstrated an ability to raise private funds to support worthwhile projects, such as the recent expansion of the Brown Public Library that was supported, in part, with donations. Continued focus on alternative revenue sources as was currently done successfully by the Gray Building Coalition will continue to be an important local goal.

Capital Budget & Program

Another strategy that the town and village have used effectively to stabilize spending, and therefore tax rates, has been capital budgeting and programming and the associated use of reserve funds. By anticipating the need for future capital projects, multiple purchases may be coordinated, and funds set aside in reserve accounts, to equalize the burden over several years. This avoids sharp fluctuations in local tax rates, allowing residents and businesses to plan ahead with a greater degree of certainty. In addition, the capital improvement program is a necessary tool to have in place, should the community consider enacting impact fees or require the phasing of large developments.

Village-Town Coordination

The town and village have discussed the consolidation of village and town governments as a means of improving efficiencies. Past proposals to merge the two have been defeated by the voters. Providing, managing, and financing municipal services is an increasingly complex and challenging task. Since this trend is virtually certain to continue, it is necessary to raise the question of whether Northfield Town and Village should continue to exist as separate political entities. During public forums in 2009, the topic of merger arose frequently, but consideration of historically strong opposition led participants to discard the matter without serious discussion.

At their annual joint policy review meeting in the fall of each year, the Village Trustees and the Town Selectmen should review this question and determine whether the timing is appropriate

for a merger study to be undertaken. If a merger study is undertaken and concludes that merger is advisable, the boards should present the question to the voters for their consideration.

Regardless of whether the two governments completely consolidate, they have made significant strides over the past two decades to cooperate and coordinate the provision of services and facilities. Today, responsibility for emergency services, recreation, municipal administration, planning and zoning, and road maintenance are shared. In 2002, the two governments strengthened this record of cooperation by entering into an inter-local agreement regarding the management of the wastewater treatment system capacity outside of the Village limits.

7.3 *Emergency Services*

Fire Department

The Northfield Fire Department is one of three emergency response providers serving the entire community. The department operates from the fire station in the village, located adjacent to the downtown on Wall Street. This facility is adequate to meet current and projected needs, although expansion may be needed if the fire department were to share a facility with the ambulance service (see below).

In 2007, the department responded to 110 calls, including grass fires, propane leaks, automobile accidents, and structural fires. The number of calls was slightly higher than the average of 102 calls per year experienced over the past five years. The department is a member of the Capital Fire Mutual Aid system, which obligates the department to assist neighboring departments in responding to major fires in exchange for assistance in fighting major fires in Northfield.

The fire department is presently staffed by 20+ volunteer firefighters, which is considered adequate to meet current needs. Firefighters are paid for time spent responding to calls and volunteer for training and administrative duties. Operating costs are funded through a combination of town allocations (\$59,650 budgeted in 2009), proceeds from the department's fundraising efforts, including the popular annual duck race, and state and federal grants.

Capital equipment is generally replaced on a ten-year cycle. In recent years, the department has upgraded its self-contained breathing apparatus, replaced its ladder truck, acquired a new pumper and thermal imaging camera, and improved the fire station. The town has established several reserve accounts to cover the cost of capital equipment replacement, including vehicles, although no major expenditures are anticipated within the next five years.

Ambulance Service

The Northfield Ambulance Service is a municipally owned (paid / volunteer) agency that provides emergency medical coverage for the communities of Northfield, Roxbury, and parts of West Berlin, Moretown, and Brookfield Vermont. Northfield Ambulance Service provides all Emergency Medical, non-emergency transport, Standby event coverage and Rescue services. The staff is primarily a volunteer organization staffed with 30 volunteer members and 1 full-time paid staff administrator. In addition, Northfield Ambulance provides back up service for Montpelier City, Berlin, Williamstown, Barre Town, Granville and Randolph.

Our annual call average has been on the rise; our current rate is approximately 700 to 850 calls per year. These calls include emergency calls, non-emergency transports, event coverage, and rescue operations within our coverage district, as well as responding as mutual aid outside our call district. Funding for the ambulance service comes from a combination of user fees, private fundraising, and municipal allocations, with approximately 70% of operating costs being covered by fees. The town budgeted \$196,540 in 2009 for operating expenses.

Northfield Ambulance operates with 2 "Advance Life Support" Ambulances, 1 Rescue Truck (Jaws of Life Equipped), 1 ATV and Rescue Toboggan and our 1 Mobile Command/Mass Casualty Trailer. Northfield Ambulance works closely with Norwich University "Mountain Cold Weather Rescue/Combat Training Team".

Along with all EMS operations, the Northfield Ambulance Service also houses the Northfield Ambulance Rescue Team. This highly trained volunteer team handles motor vehicle rescue, off-road and back-trail rescue, assists with search and rescue operations (in conjunction with the Vermont State Police), and is trained in confined space rescue and evacuation. In the past five years we have handled numerous motor vehicle incidents, four search and rescue incidents, three off-trail rescue situations and assisted with a catastrophic oil spill on Route 12 in Northfield.

Currently the Northfield Ambulance Service is housed in the Town of Northfield Highway Facilities on the northwest corner of the building. An issue that has yet to be addressed is the need for a new location from which the ambulance service can operate more efficiently and effectively. Space at the town garage is limited, and conflicts exist between emergency response and maintenance operations on the same site.

Police Department

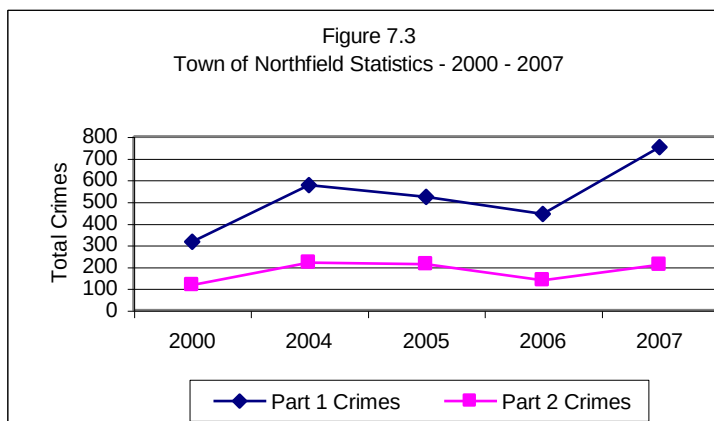
Law enforcement services are provided by the Northfield Police Department, a full-time, full service law enforcement agency serving the town and village. The department is staffed by a chief of police, six full-time officers, and occasionally part-time officers. All officers have received training at the Vermont Police Academy.

The department, which is served by an on-site dispatcher during regular working hours and a state police dispatcher after hours and on weekends, responds to an average of 1,909 calls per year. Annual operating costs for the department were budgeted at \$634,450 in 2009 – making the police department second only to the highway department in terms of total annual cost to the municipality.

It is difficult to draw a correlation between the level of criminal activity and police effectiveness. In 2000, there were 22.3 "Part 1" crimes per thousand residents, and 56 "Part 2" crimes per thousand residents. Part 1 crimes include homicide, rape, aggravated assault, arson, and larceny. Part 2 crimes are of a relatively less serious nature, including forgery, vandalism and drug and alcohol offenses. In 2007,

the number of Part 1 crimes per thousand residents had increased to 33.9, while the number of Part 2 crimes had increased to 92 per thousand residents (see Figure 7.3).

In addition to the police department, Norwich University provides private, on-campus security services. This has the effect of reducing the burden on the police department. The unique law enforcement needs associated with hosting a college in the community, however, place ongoing off-campus pressures on the department. As the university – and community – grow, it is likely that an additional full time officer will be required to maintain existing coverage; one addition has already been budgeted.



Major equipment used by the police department, including patrol vehicles, is replaced on a scheduled basis. A reserve fund has been established for that purpose. In addition to vehicle replacement, in 2003 the most pressing facility issue facing the department was the need for building improvements. In 2008, this need was addressed through the construction of a new police station.

Enhanced 911

A state board supervises the operation of Vermont's Enhanced-911 system, instituted in the 1990s. This includes monitoring and auditing E-911 databases for street addresses, contact information and responders, the E-911 network, and four public safety answering points (PSAPs) which take calls, and forward them to local dispatchers. The system depends on regular information updates from municipalities to ensure complete coverage. In Northfield, the ambulance service is responsible for maintaining the local "E-911" emergency response system.

7.4 Water & Sewer Facilities

Water System

Northfield Village has maintained a public water system since establishing a water department in 1895 (State of Vermont Public Water System Number 5275). The Village-owned water system serves the Village, Northfield Falls, Northfield Center, and all of Norwich University. There are approximately 12,000 connections that serve a total of 4,000 residents.

All of the water is pumped from the well field on Vermont Route 12A; there are three shallow, gravel-packed wells located there. Well #1, drilled in 1940, is capable of 400 gallons per day (GPD); Well #2, drilled in 1946, is capable of 600 GPD; and Well #3, drilled in 1998, is capable of 1000 GPD. Due to piping sizes and constraints, only one well is pumped at a time.

The wells pump into the distribution system and, once demand is satisfied, the water fills the three reservoirs: two 250,000 gallon concrete tanks on Cheney Farm and a 1,000,000 gallon concrete reservoir located on Garvey Hill. The system uses in the vicinity of 450,000 GPD and, with the present storage, allows for about three days emergency supply. The system also provides for fire protection, with 157 fire hydrants and sprinkler connections on the larger buildings.

Energy efficiency is obtained through automatic pumping and level controls and off-peak pumping at night. The distribution system originally was constructed in 1906, and it was expanded several times over the past one hundred years. It consists of approximately twenty-five miles of mains, which include 12", 10", 8", 6", and 4" cast iron and various sizes of copper (1/2" through 2").

The entire system is metered, and the loss of approximately 20% of water is accounted for by leaks, hydrant flushing, fire, etc. The water is chlorinated, fluoridated, and treated for pH adjustment. All of this is required for public health.

In 2003, a new 12" ductile iron main was installed from the new 1,000,000 gallon reservoir on Garvey Hill to North Main Street.

In 2008, 8500' of new 12" ductile iron main was installed from the new 12" main on North Main Street to Moody Lane in Northfield Falls, replacing an aged 6" main. This improvement provided increased residual pressure, eliminating backflow problems as well as increasing fire-fighting flows.

A major improvement was accomplished in 2004 when the two large water mains running under the railroad tracks on Wall Street and Water Street were replaced inside of steel sleeves. This improvement provided increased safety for trains in those areas.

Plans have been developed for more improvement on the system, which will require Village votes for bonds.

The most important improvement concerns protection of the water supply at the well field. This would require installing a wastewater collection system to prevent contamination of the water source from the one hundred or so septic systems located in the well field area. In the survey of residents completed in 2009, protection of the well field received strong support. There may also be support among citizens for expansion of both water and sewer service in this area to direct growth and more fully utilize the existing investment in municipal infrastructure.

Water Department Five Year Plan Goals:

- Complete new 12" water main from well field to village common.
- Complete new 12" water main from Garvey Hill Reservoir line to west side of town.
- Complete a radio meter reading system.
- Start a meter testing and replacement program.
- Continue with the leak detection and repair program.
- Determine the best method and complete mapping of the system.
- Explore all areas of financing improvements.

Wastewater System

Like the water system, Northfield's wastewater treatment facility is owned and operated by the village. It consists of two parts: the collection system and the wastewater treatment facility.

Located adjacent to Route 12 in the village, the facility's service area includes the entire village and most of Northfield Center, including Norwich University.

The collection system consists of clay pipe and manholes. There is one pumping station on the system with two other privately-owned pump stations. The original wastewater treatment facility (WWTF) was built in 1966 and, with the construction of an interceptor, collected almost all the wastes from Northfield Center and the Village.

In 2004, the WWTF was upgraded, automated, and phosphorous removal incorporated in the process. This was a \$7,000,000 upgrade with approximately half of this amount paid by the State and Federal governments. The upgraded facility includes treatment utilizing sequential batch reactors; an equalization basin; sludge removal and handling; a chlorine contact chamber; and dechlorination before discharge into the Dog River. The system processes approximately 450,000 gallons per day (GPD). The facility is capable of treating up to 1,000,000 GPD, which will allow for the expansion of the system in main areas.

The priority to the south is to protect the well field and the other priority is to the north to collect the waste from Northfield Falls. There are several smaller areas that could be included for future development as well.

The collection system is combined, which allows storm flows to the WWTF. This should be studied and more separation done in the future.

The wastewater treatment facility performs well and meets all State and Federal treatment parameters, thus protecting the environment.

Outside of the sewer service area, residences and businesses are responsible for disposal of wastewater through in-ground systems. Since 2002, all new systems require a permit from the

Vermont Agency of Natural Resources and must comply with state design standards. Alterations to existing systems have required a state permit since 2007.

Sewer Department Five Year Plan Goals

- Construct a wastewater collection system on Vermont Route 12A to Norwich University to protect the water supply (highest community priority) which also will increase the customer base. Preliminary plans have been completed.
- Complete a professional engineering study of the wastewater collection system and develop a plan to rebuild or replace aging wastewater lines and manholes.
- Complete a professional engineering study of the combined system and the best course to separate or treat storm water.
- Determine the best method and complete mapping of the system.
- Continue mapping of the system
- Continue and expand tree trimming.
- Continue maintenance of the system for reliability.

Water & Sewer Department

Although the village maintains separate water and sewer departments for budgeting purposes, the two systems share supervisory, technical, and administrative staff. Presently, the water and sewer departments are staffed by four full-time workers who are cross-trained as licensed water and wastewater facility operators, under the direction of the Superintendent of Public Works.

In addition to staffing needs, the water department has historically been located in the municipal building, while the sewer department has stored equipment and operated from the treatment plant. The consolidation of the operation at the treatment plant would result in a more efficient operation while providing options for more efficient use of the municipal building. A new 3000 square foot space would be required for to support this consolidation. If such a consolidation of maintenance functions occurs, however, residents should still have access to administrative staff in the Village for such purposes as paying bills and seeking information.

7.5 Recreation

Northfield residents enjoy a variety of public recreation facilities and programs not available in smaller communities. Recreation facilities and programs are overseen by a seven-member Recreation Board (appointed by the Selectmen) and several local volunteer organizations. The Municipal Manager hires a seasonal recreation director to coordinate the use of the pool by the summer program and the swimming program, and to oversee the operation of the municipal pool and maintenance of other facilities. Lifeguards and maintenance workers are also hired on a seasonal basis. The total recreation budget in 2009 was \$59,330.

The two developed recreation facilities are:

- **Memorial Park**, which includes the municipal outdoor swimming pool, a skateboard park, outdoor volley-ball court and playing fields suitable for baseball, softball, and soccer; and
- **Northfield Falls Fields**, which include playing fields suitable for soccer, Little League baseball and softball, as well as volleyball courts.

Combined, these facilities provide adequate space and facilities to serve existing demands for organized field space and less formal youth recreation. A short-range plan of the Recreation Board is to connect the two facilities with the construction of an off-road, multi-purpose recreation path. Such a path would also provide a pedestrian and bicyclist connection between Northfield Falls and Northfield Village. In addition, the proposed path connection between the

downtown and Norwich University, and associated development of an “eco-park” along the Dog River, would further enhance recreation and transportation opportunities (see Chapters 5 and 6).

In addition to developed facilities, Northfield also boasts a well developed network of winter trails maintained by the Vermont Association of Snow Travelers (VAST), excellent fishing opportunities in the Dog River and tributary streams, good hunting (in large part made possible by private landowners); and hiking trails on Paine Mountain. Trails to Paine Mountain cross the municipal forest, and lands owned by Norwich University and the local telephone company.

At the public forum on Northfield’s community infrastructure, there was enthusiastic discussion of the possibility of building on Northfield’s rich recreational resources to bring in future economic development. There is interest in marketing the municipality as a recreation destination, particularly for hiking, biking, and fishing. Survey results showed that almost two-thirds of residents favored additional protection of land for recreation purposes.

7.6 *Solid Waste Management*

Northfield is one of 22 member towns forming the Central Vermont Solid Waste Management District (CVSWMD), first organized in 1984. The District, governed by a board of supervisors made up of an appointed representative from each municipality, is charged with administering regional programs for the reduction, reuse, recycling, and disposal of solid waste. District planning and programs are funded primarily through a municipal per capita assessment (\$3.10 in FY09), and a surcharge on trash generated within the district (\$30/ton in FY10). Northfield’s municipal assessment, included annually in the Select board’s budget, was set at \$18,000 for 2009-2010 – stable from previous years.

The district offers several programs to help member communities reduce, reuse and recycle solid waste, including recycling depots, hazardous waste collections, illegal dumping and burning programs, Green Up Day grants, an award-winning DeTox Family Program, junk car removal assistance, clothing reuse (“drop and swap”) events, and a reuse business grant program. The district also negotiates contracts with private entities for waste collection and disposal.

The District’s mandatory recycling ordinance went into effect in 1995. Each hauler licensed by the district to collect garbage must also offer collection of mandatory recyclables. Many haulers and drop-off locations also collect additional materials, increasing the total diversion rate to around 30% of the waste stream. Locally, trash and recyclables are collected at the Northfield Dog River Depot, located at the Public Works Yard off North Main Street, which has been managed by the district since 1997.

The district has not yet undertaken a waste generation survey to determine the amount of waste generated from each of its member communities; however, nearly 40,000 tons of garbage (or 3.5 pounds per person per day) from the district is land filled annually. The majority of waste (73%) is shipped to the Waste USA landfill in Coventry, another 25% ends up at the Waste Systems International (WSI) landfill facility in Moretown, and a small amount (2%) is delivered to Bethlehem, New Hampshire. Given the distance to these end facilities, portions of the region’s trash are dumped and packed into trailers at transfer stations in Hardwick and East Montpelier.

The cost to local residents is currently \$3.50 for each 30 gallon/25 pound bag of trash. The district anticipates no reduction in these rates, even as additional landfill capacity is developed statewide.

The Waste USA facility has permitted capacity through 2009. WSI's permit originally extended through 2007; however, they were expected to seek authorization to open another cell prior to permit expiration. In 1993, and again in 2001, citizens in the district overwhelmingly opposed the location of a new landfill within the region. Accordingly, the CVSWMD currently has no intent to pursue a district-owned landfill, but will be re-evaluating its landfill-siting criteria for the review of any proposed private landfill facilities.

Under Act 78, passed by the state in 1987, CVSWMD must develop plans and programs that are consistent with the state's solid waste implementation plan. The district's solid waste plan, including state approval, was completed in the winter of 2003. Over the life of this plan, the district intends to embrace a "zero waste" philosophy that emphasizes resource conservation through the reuse and recycling of materials. In addition, all solid waste management facilities, including proposed landfills, must be identified in the district plan in order to receive certification from the state. Proposed solid waste management facilities are also subject to local regulations and require the support of the host community.

7.7 *Health & Social Services*

There have been dramatic changes over the past several years in health care and in service and insurance industries, resulting in rising costs and increased differentiation among service providers to access available federal and state funding. Many industry problems, including rising health care costs, are beyond the reach of municipalities and local organizations to address, but affect local businesses, workers, residents, and municipal budgets. Coordination and collaboration between funding agencies and service providers to ensure the effective delivery of services is more important than ever, and could be improved through local information and referral services. It is also reasonable to expect that volunteer efforts, and municipal funding and support for local service organizations, will become more important given anticipated cuts in state and federal programs.

A variety of private, state and nonprofit agencies provide health and social services to Northfield residents. Of particular importance locally are services provided to Northfield's elderly population, and to children and families in need. State and regional services are generally based in Montpelier or Barre. Many area nonprofits, described below, have a local presence, and depend in part on volunteers, municipal funding, and donations for support. Non-budgeted municipal appropriations to requesting organizations are decided annually by town voters.

Health Care Services

Northfield residents have access to general health care services locally through several private practitioners, Green Mountain Family Practice, and several dental practices. The People's Health and Wellness Clinic in Barre also offers health care services to area residents who are uninsured.

The town's hospital closed several years ago; however, the Mayo Health Care facility now serves as a 50-bed Level I/II nursing home that provides intensive and intermediate residential nursing care and therapies. There are also two state-licensed Level III care facilities in town – Four Season Care Home and Mayo Assisted Living – which provide room and board, personal care, 24-hour non-medical supervision, and limited nursing services to seniors and adults with disabilities. The two facilities have a combined capacity of 83 residents.

The Central Vermont Medical Center in Berlin is the region's full-service hospital, providing patients with emergency, medical, surgical, psychiatric, pediatric and social services, including counseling and referrals to area health and welfare agencies. A variety of outpatient services are also available. Northfield residents also have access to the Gifford Memorial Hospital,

located in Randolph. Both hospitals are associated with the Dartmouth-Hitchcock Medical Center, in Lebanon, New Hampshire.

Social Services

Locally, Community Emergency Relief Volunteers (CERV) provides food, clothing, utility, and other emergency assistance to residents in need. CERV also runs the local food shelf, located in the town's ambulance garage. It receives no public funding and operates through the generosity of the Northfield community and local businesses.

The Central Vermont Community Action Council (CVCAC), based in Berlin, offers a wide range of programs to serve the needs of low-income households and residents in the region – including food assistance, emergency fuel and weatherization, family support, Head Start, welfare-to-work, and community economic development programs. Community Action offers emergency assistance, to help offset the immediate impacts of poverty, and also long-term support for those working their way out of poverty. In 2007, CVCAC helped 345 Northfield residents and 137 families.

Senior Services

The Greater Northfield Senior Center, on Wall Street, serves as a gathering place for local residents, and offers a variety of health and social programs and events, often in association with area agencies, to serve the town's senior population. The center offers regular health screening, workshops, and an on-site meals program.

The Central Vermont Council on Aging (CVCOA) is a private, nonprofit group that provides support services for seniors, directly or under contract with local groups and organizations, to live independently in their homes and communities. In 2007, case management services were provided to 201 town residents. The Council also contracts annually with the Northfield Senior Center to provide community and home delivered meals ("Meals on Wheels"). Meals are served at the center Monday through Friday, for a donation.

The area's Retired and Senior Volunteer Program (RSVP) organizes opportunities for seniors to volunteer their services to a variety of community groups. Monies raised locally are used to help offset the cost of supporting volunteer activities.

One of the more certain changes that Northfield faces is the aging of its population. The fact that Baby Boomers are entering their retirement years means that greater attention is necessary to ensure that Northfield seniors receive necessary services. There is also potential for economic development associated with providing for the needs of senior citizens; one idea presented in a public forum was that Norwich University could consider developing a retirement community for their alumni, such as other schools have begun doing. Planning for transportation planning and commercial development in the Village should consider the dynamics of the aging population.

Youth & Family Services

The Northfield Boys & Girls Club was established to provide a supervised place for youth to congregate that is safe and secure from dangerous and/or illegal substances; provides youth an opportunity to plan and take part in social, recreational, and educational activities and community service; and allows youth to experience democracy by exercising self governance under the guidance of an adult advisor. The Club's credo is "Honor Youth." The Club, which is open to any youth from Northfield, Roxbury, and Riverton, provides a number of programs including community service. It is located in the Gray Building.

The Northfield/Roxbury Drug Free Communities Support Program is funded by the U.S. Department of Justice. The program's goals are to reduce substance abuse among youth and to form a coalition of community groups whose members will focus on helping to provide resources to create a healthy environment with emphasis on the prevention of substance abuse. To achieve these goals, grants are awarded to youth-serving groups in support of their programs designed to reduce risks that lead to substance use and abuse. Other strategies include coalition building with adult leaders and youth, increased media attention and the evaluation of youth use and attitudes towards alcohol, tobacco, and other drugs.

Good Beginnings of Central Vermont, based in Northfield, is a nonprofit program that provides volunteer support and education to new parents and their newborn or adopted babies, to help ease the transition into parenthood. Volunteers visit all families with infants, and also work with local libraries to distribute information. The Washington County Youth Service Bureau provides crisis intervention, parenting, family counseling, substance abuse services, and transitional living programs for runaway and homeless youths. In 2007, services were provided to 51 Northfield youths and family members. Battered Women's Services and Shelter, opened in 1990 in Montpelier, provides services to more than 1000 victims of domestic violence annually. The closest homeless shelter is the Good Samaritan shelter in Barre.

Child Care

Families in Northfield require access to affordable, high-quality day care for young children. The town of Northfield provides public pre-school for one year prior to kindergarten. The town should ensure that its policies encourage, rather than impede, provision of other private services. It is important that these facilities are integrated appropriately into neighborhoods, especially where traffic, parking, noise, and other potential impacts would not present unsafe or nuisance situations.

A query of the online Bright Futures Provider directory reveals that there are eighteen (18) state-licensed child care programs within 12 miles of Northfield; the closest programs are North American Play Care IV in Berlin, Love to Learn in Waitsfield, Stepping Stones Mad River Valley Day School in Waitsfield. Licensed programs included early childhood programs, after-school programs, and some home-based programs. The programs are inspected by the Department of Labor and Industry, Fire Safety Inspectors, and must obtain a Water and Wastewater Disposal Permit from the Agency of Environmental Conservation. Such a facility is considered a public building.

The Family Center of Washington County, based in Montpelier, is the area's child care resource and referral agency. The Center also provides preschool and after-school child care services, play groups, parent education and support activities, training for child care providers, and assistance to parents to pay for child care services. In 2007, the Center served 210 Northfield residents.

The Bright Futures Provider directory lists over 20 registered home daycares located within ten miles of Northfield, including three in Northfield and one in Roxbury. A child care home that is registered with the State of Vermont is a child care program approved only in the provider's residence, which is limited to a small number of children based on specific criteria (e.g., "no more than six full-time children").

The cost of child care has increased due to the increased cost of living, liability insurance, and supplies. Child care is difficult to find, especially infant and after-school care. Vermont has the highest percentage of women with children under the age of six in the workplace in the United States, making the provision of child care especially important.

Local establishments provide public space and activities appropriate for pre-school age children. The Brown Public Library hosts a weekly story hour in addition to unscheduled activities. The Northfield school property has been used for several preschool programs, early childhood music, science, and reading programs facilitated by Kindermusik, Mother Goose Programs, and Success-By-Six. There are undoubtedly more opportunities for activities and interactions in public settings that would enrich our young citizens' development and support their parents' childrearing responsibilities.

There are several private day care centers in Northfield. The town will work to improve the child care infrastructure. This may well be achieved independently or in conjunction with neighboring towns.

7.8 Communications Services & Facilities

Northfield is served by both traditional and more modern forms of communication that inform the community and connect residents with each other and the wider world.

Newspapers

The *Northfield News*, the local weekly newspaper, was first established in 1878, and is the municipality's official newspaper for public warnings, notices, and announcements. Many Northfield residents also get their news from the *Times-Argus*, central Vermont's daily paper based out of Barre, which offers some local coverage. Norwich University's newspaper, *The Norwich Guidon*, also covers some local events. These papers also are available online.

Telecommunications

Technology and deregulation have blurred the lines between the formerly distinct, separately regulated services of telephone and cable television. An array of integrated networks now provide broadband Internet access, voice and data integration, video conferencing, distance and on-line learning, and telecommuting. Trans-video, Inc., TDS Telecom, and AT&T cellular are the primary service providers in Northfield. Brown Public Library provides public Internet access.

Telephone Service. The Northfield Telephone Company, first established in 1896, is the area's local exchange company, and a subsidiary of Telephone and Data Systems Inc. (TDS Telecom), a national telecommunications provider. TDS provides a variety of phone, data, Internet, and satellite television services to Northfield and Roxbury area businesses and residents for monthly fees. TDS provides broadband Digital Subscriber Line (DSL) services, and participates in "Link Up Vermont" that provides subsidized phone installation services for income-eligible residents.

Cellular Phone Services. Cellular phone service is also improving, but because of local topography, remains spotty in the Dog River valley. AT&T (formerly Unice) has a tower installed at Norwich University that provides cellular coverage in a significant portion of the Northfield area. Providers are actively pursuing tower sites throughout Vermont to expand cellular coverage. Northfield, under the federal 1996 Telecommunications Act, cannot exclude such facilities, but can regulate their location and appearance through local zoning bylaws. Emissions, including related interference and health considerations, are regulated separately by the Federal Communications Commission (FCC).

Radio, Television & Cable. As a result of the mountainous terrain, Northfield residents without cable or satellite service get limited broadcast radio and television reception. Norwich University's noncommercial radio station, WNUB (88.3 FM), has been broadcasting to central

Vermonters for 35 years. The station's signal is transmitted from a 30-foot tower located on the roof of Jackman Hall, and reaches listeners within a 10-mile radius.

Trans-Video Inc., based in Northfield, provides cable television packages for a monthly fee. Trans-Video also provides two channels for public, educational, and government (PEG) use, as required by the Vermont Public Service Board (e.g., Channel 7 and 14). Currently, meetings of the Selectmen and Trustees are broadcast on Channel 7, but other local programming is limited. Northfield residents outside the cable service area have access to other satellite television services, including TDS Telecom (through DISH network).

Vermont Interactive Television offers videoconferencing services to businesses, government, nonprofit organizations, and schools at fifteen sites around the state. The closest sites to Northfield are at the Vermont Technical College in Randolph Center, and at the Department of Labor offices in Montpelier.

Internet & Web Services. Increasingly, more information and services, including government and educational services, are being provided through web sites, accessed through the Internet. Northfield residents with a phone line, computer, and modem, or a direct line connection, have access to a growing number of local and national Internet Service Providers (ISPs) – and a variety of associated services, including e-mail, file and data transfer services, web sites, and access to the World Wide Web. Residential Internet services currently offered through TDS include dialup access, Digital Service Lines (DSLs), and web hosting. Businesses also may have access to dedicated (Integrated Services Digital Network [ISDN] and T1) lines for higher speed service. Trans-Video offers its cable customers cable modem Internet access. For residents without a computer or cable service, the Brown Public Library offers public on-line access, in partnership with TDS and Norwich University. The Senior Center offers classes and online access for senior citizens.

The Internet is increasingly important as an educational tool for information access and on-line (“distance”) learning opportunities. Northfield schools have broadband access to online services and resources through “K12net,” an extension of Vermont’s GOVnet, which supports local and distance learning programs. The Washington South Supervisory Union and both Northfield schools maintain basic web sites, and participate in VITA-Learn, the Vermont Information Technology Association for the Advancement of Learning, which encourages the use of information technologies to meet Vermont educational standards. Norwich University has also established on-line courses, including an on-line MBA program for business professionals.

7.9 Cultural Facilities & Activities

Brown Public Library

Built with funds provided by George Washington Brown and dedicated in 1906, has been serving the Town of Northfield for over 100 years. The library's holdings include approximately 22,000 print materials and 3,000 audio and video items. In addition, the library subscribes to online databases that provide many other resources for our patrons.

The library's dedicated staff and volunteers keep the library open six days (43 hours) a week. Library programming includes preschool story hours, a summer reading program for children, adult reading/discussion series, and other programs of interest to the community. Norwich University provides support for library computers and software, TDS donates a T1 line, and Trans-Video, Inc. provides a high speed cable connection and support for our wireless network. The library is governed by an elected Board of Trustees.

The Brown Public Library is first and foremost a lending library, offering high-interest materials to a diverse community. The library is also the preschoolers' door to learning and, for older children and adults, a center for lifelong learning and independent study. The library has a strong commitment to patron services, and we will need to maintain an informed and competent staff as we make new technologies and resources available to our patrons.

Over the years the library has increased its hours, staff and services, and we expect that trend to continue. More people are coming to the library, especially to use our public access computers. We've added two more computer stations in the last year (for a current total of eight), and usage of our wireless network continues to grow. As our patrons' needs become more sophisticated, there's demand for more timely information in a wider variety of formats. Recently the library joined "Listen Up! Vermont", a consortium of libraries offering downloadable audio books to their patrons. The Brown Public Library will continue to do its best to be responsive to the needs of the Northfield community.

Friends of the Brown Public Library is a membership-based nonprofit group organized to support the activities of the library through fundraising activities and volunteer efforts. The organization is financed through annual membership dues, the sale of book bags, and other items. The Friends, in consultation with the librarian and library trustees, use funds raised to purchase books and equipment, and to support library programs.

Community Organizations & Events

Northfield is home to nearly forty service, educational, and community organizations that support a wide variety of local activities and cultural events, and contribute much to community life. Norwich University also supports community activities through its community service and youth mentoring programs, and by making university facilities available for use by community groups.

Paine Mountain Arts Council is a non-profit community organization dedicated to presenting professional artists of all genres as well as providing a venue for local amateurs. Its yearly schedule includes chamber music concerts, youth orchestra concerts, an annual art show, poetry readings, and an informal outdoor summer series.

Annual events that attract both local residents and visitors include the weekly Farmers Market held on the village common, Summer on the Common entertainment series held Tuesday evenings through July and August; Labor Day Observances and Parade, a three-day festival held on the village common; and Ellie's Farm Market Jack-o-Lantern Show, a 30-year local Halloween event. Northfield also is known for the annual Cabot Hosiery Sock Sale, held each fall at the Cabot sock mill and the Barry T. Chouinard, Inc. tee shirt sale held at the National Guard Armory.

Cultural events attracting outside visitors present Northfield in a positive light, and also contribute to the local economy. Northfield Observances, which has organized the annual Labor Day weekend festivities since 1977, has estimated that this event alone draws thousands of people to the community and provides significant annual revenues to businesses and organizations that set up booths on Depot Square, and also supports other Northfield businesses.

The Northfield Business & Professional Association (NBPA) was created in 1978, but has been inactive since 2005. The NBPA promoted member businesses, local economic development, and Northfield as a tourist destination; it also took a broader interest in larger issues affecting the community. NBPA sponsored community events, recognized outstanding community service, represented the community in regional organizations, and provided information and positions on issues affecting the community. Participants in the 2009 public forums repeatedly

raised the topic of reviving the NBPA to serve as an engine for economic development and downtown revitalization.

7.10 Community Facilities & Services Goals, Policies & Tasks

Goal

The provision of effective and cost efficient community services, facilities, and utilities is needed to meet present and future demands of Northfield citizens and visitors.

Policies

1. Provide municipal services and facilities in an efficient and cost effective manner to ensure a high level of service without creating an undue financial burden on taxpayers. To this end:
 - Village and Town governments should continue to coordinate and cooperate to avoid redundancies and maximize efficiency; wherever possible, facilities and services should be shared;
 - Alternatives to the property tax to fund local services (grants, user fees, etc.) will be used wherever practical;
 - Capital expenditures will be programmed to avoid sharp fluctuations in the property tax rate;
 - The municipality will coordinate with neighboring communities to share services and associated costs to the extent practical;
 - Expansion of not-for-profit institutions, including Norwich University, shall be planned in a manner that does not place an undue burden on municipal services and facilities or result in an undue adverse impact on the property tax rate.
 - Norwich University services should be considered as potential resources to supplement municipal services, more efficiently fulfill municipal responsibilities, and better meet community needs.
2. Plan for adequate facilities and services to accommodate anticipated future demands, so that those demands do not create an unreasonable burden. To this end:
 - The scale and timing of development shall be controlled to ensure that the resulting demand for services and facilities does not exceed the municipality's ability to provide them;
 - In the event new or expanded public facilities required to accommodate new development are not available or planned, the developer shall reimburse the municipality for the proportional cost of the facility(s) needed to accommodate the new development, unless the municipality determines that the proposed development will provide community benefits which outweigh or offset the cost of facilities; and,
 - Consider that the manner in which services are delivered in the future may be affected by the aging of the population.
3. Make the most effective and efficient use of existing services, structures, facilities, and utilities before expanding capacity or constructing new buildings or facilities.
4. Coordinate the provision of facilities and services with local land use and development goals and policies outlined in this plan.
5. Continue to staff municipal departments at levels adequate to maintain and/or enhance existing municipal services.

6. Provide municipal water and sewer facilities to customers within defined service area boundaries. The extension of facilities to customers outside of those service area boundaries shall be limited to instances in which the extension is necessary to address a threat to public health and safety or to reinforce and support local land use and development policies unless extension is paid for by customers.
7. Allocate municipal water and sewer capacity in accordance with the goals and policies of this plan, including those related to land use, economic development and housing.
8. Operate the municipal wastewater system in a manner that ensures the highest practical level of protection to the Dog River.
9. Continue the Northfield Village function as the civic and cultural center of the community. To this end, municipal offices and emergency services should be located in Northfield Village, preferably in or adjacent to the downtown.
10. Implement the 2009-2010 Capital Improvements Budget proposed by the Select Board.
11. Pursue transportation and economic development policies regarding the construction of pedestrian and bicycle paths between Memorial Park and Northfield Falls, the downtown and Norwich University, in order to enhance recreation opportunities.
12. Manage the municipal forest, including land associated with the municipal water supply, for dispersed outdoor recreation in a manner that is consistent with other functions of the property (e.g., water supply, forest management).
13. Maintain municipal recreation facilities, including Memorial Park and Northfield Falls ball fields, in order to provide recreation facilities to local residents on an ongoing basis. The upgrade or expansion of those facilities should occur in accordance with a long-range recreation plan.
14. Encourage the creation and maintenance of a network of recreation trails, including hiking trails and winter recreation trails maintained by VAST. Class IV town roads should be available for recreation, including snowmobile trails, on a case by case basis providing the Select board determines that such use will not result in a hazard to public safety.
15. Continue the Dog River Depot's function as the municipality's solid waste transfer facility and continue providing a full range of recycling and waste disposal options to local residents and businesses.
16. Continue to participate in the Central Vermont Solid Waste District and support the District's efforts to promote recycling and reduce waste generation.
17. Encourage private day care facilities and allow their use in all zoning districts (subject to appropriate conditions) in which residential and/or business uses are allowed.
18. Encourage the Northfield Boys & Girls Club to continue to serve as a safe setting for local youth to congregate and take part in supervised social, recreational, educational and community oriented activities, whether at its present location or another suitable location within or adjacent to the downtown.
19. Encourage the Greater Northfield Senior Center to continue to serve as a gathering place and service center for area seniors, whether at its present location or another suitable location within or adjacent to the downtown.
20. Encourage the Paine Mountain Arts Council to continue its "Summer on the Common" entertainment and expand its schedule of arts presentations.

21. Maintain an up-to-date emergency management plan that addresses both potential natural disasters (e.g., flooding) and man-made disasters (e.g., major accidents).
22. Ensure that the E-911 emergency response system is maintained on an annual basis and that addresses are accurate and current.
23. Consider funding on an annual basis private entities and non-governmental organizations that provide social services to Northfield residents.
24. Encourage the development and maintenance of state of the art telecommunications infrastructure, including broadband internet access, provided such infrastructure, especially telecommunications towers and related facilities, is developed in a manner which minimizes or mitigates potentially adverse impacts to public health and safety and scenic resources.
25. Maintain existing public telephones available in the downtown area, and encourage the placement of additional public phones in appropriate locations to enhance public safety and security.
26. Make full use (by municipal boards and committees) of available media outlets, including the *Northfield News*, the *Times Argus* and the *Washington World*, local cable access and the municipal web site, to increase public awareness and participation in community events.

Tasks

1. Maintain and update the Capital Budget and Program on an annual basis. [Municipal Manager, Selectmen, Trustees]
2. Continue to explore opportunities to coordinate and share the responsibility for providing municipal services and facilities between the Town and Village, and between the municipality and the university. [Municipal Manager, Selectmen, Trustees]
3. Review proposals for development to determine what impact they will have on the ability of the municipality to provide adequate services and facilities without an undue adverse impact on local tax payers, and place appropriate conditions on new development regarding the timing of construction and provision of services or facilities. [Planning Commission, Board of Adjustment]
4. Review studies regarding the impact of new development on tax rates and utility user fees. If Northfield's services and infrastructure continue to have excess capacity, future development may not result in tax rate or user fee increases. [Planning Commission]
5. Maintain representation on, and work with Norwich University's facilities planning committee to address the impact of new development and enrollment expansion on the municipalities' ability to provide services and facilities and impact on the local tax rate. [Selectmen/Trustees and Staff].
6. Conduct an assessment of municipal office space and related facilities to identify current and anticipated space needs for all municipal departments, and determine strategies for addressing those needs. [Municipal Manager, Selectmen, Trustees]
7. Prepare a wastewater allocation ordinance that ensures that reserve capacity is allocated in a manner that reinforces the land use, development, and natural resource protection policies of this plan [Planning Commission, Municipal Manager, Trustees]

8. Evaluate and comment on the regional solid waste management plan in relation to Northfield's needs, prior to its adoption by the District. [Municipal Representative(s) to District; Municipal Manager, Planning Commission]
9. Evaluate the potential to market Northfield as a destination for recreation. Study other towns that have succeeded in doing this. Identify the key recreational assets that could be developed to strengthen the municipality's appeal as a destination. [Recreation Committee, Planning Commission]
10. Evaluate existing and anticipated recreation programs and facilities and prepare a plan for the long-range management and, if appropriate, upgrade or expansion of those facilities. [Recreation Committee]
11. Continue to ensure that public meetings are broadcast on community access television. [Trans-Video, Selectboard, Trustees, School Board]
12. Adopt cellular telecommunications provisions under local zoning that require:
 - Providers to demonstrate existing gaps in coverage, and coverage improvements that will result from the installation of a new facility;
 - Facilities to be collocated where feasible;
 - Telecommunications towers to be removed if not in use (e.g., for 18 months or more);
 - New facilities to comply with standards to minimize potential environmental and visual impacts resulting from such facilities; and
 - Small facilities to be located within existing structures (e.g., church steeples). [Planning Commission, Selectboard]
13. Evaluate current user fee structures and potential alternative funding sources for local services and facilities to reduce reliance on the local property tax. [Municipal Manager]
14. Evaluate water distribution system rehabilitation for the water system. [Municipal Manager, Trustees, Water and Sewer Superintendent]

Chapter 8 Local Education

8.1 Overview

The goal of the Northfield School system is to “encourage the highest quality educational system for all students of Northfield, and to encourage preparedness to handle the future of (the) school system’s growth.” The municipality works toward this goal through the Northfield School Board, volunteer organizations, and the Washington South Supervisory Union, which, together with the Town of Roxbury, helps to oversee separate elementary schools in each community and the Northfield Middle/High School. This chapter provides brief background information regarding the school system, and identifies issues likely to affect the system in the coming years.

8.2 School Facilities

Northfield educates all pre-kindergarten through grade 12 students at a central location on Cross Street in Northfield Village. In addition to the school campus, the municipality owns the adjacent 160-acre Cook Farm, located to the northwest of the schools, which is used for outdoor activities.

Elementary School

Students in pre-kindergarten through grade 5 are educated at the Comiskey School. The Comiskey School is administered by the five-member, elected Northfield School Board. A summary of recent trends and conditions regarding school participation, class size, access to technology, and staffing is presented in Table 8.1.

Originally built in 1978, the school was upgraded in 1994 in order to meet the needs of the projected enrollment. The school does not have adequate outdoor recreation facilities. Expansion of existing recreation fields is limited by terrain, other physical constraints (e.g., wetlands), and adjacent residential neighborhoods.

Northfield Middle/High School

Northfield Middle/High School is located in a shared facility adjacent to the Comiskey School on Cross Street, and is administered by the Northfield Board of School Directors. The facility provides educational services for middle school (grade 6-8) and high school (grade 9-12) students from Northfield and Roxbury (Roxbury students attend Northfield schools beginning in grade 7). A summary of recent trends and conditions regarding school participation, class size, access to technology, and graduate aspirations is presented in Table 8.2.

The High School was constructed in 1954 and underwent substantial upgrade and expansion in 1994, at which time the middle school was established in a separate portion of the building.

Table 8.1
Northfield Elementary School

	2004-05	2005-06	2006-07	2007-08	Vermont (most recent)
Participation					
Total Enrollment	312	321	316	308	94,114
Attendance Rate	95.9%	95.3%	95.2%	95.2%	95.1%
Class Size					
Average Class Size	15.3	14.6	16.6	17.3	15.6
Student/Teacher Ratio	12.24	11.63	13.74	13.75	11.13
Eligible Special Education	18.6%	14.0%	14.2%	14.0%	14.9%
Home Study (number)	11	13	11	8	2,096
Technology					
Students per Computer	2.1	1.6	1.6	1.5	1.5
Internet Access	Yes	Yes	Yes	Yes	Yes
Type of Internet Connection	DSL	DSL	DSL	DSL	N/A
Personnel (FTEs)					
Classroom Teachers	17	18	17	15	3,397.66
Other Teachers	12.7	13.4	12.7	11.7	1,746.43
Instructional Aides	15	12	13	11	4,376.10
Licensed Administrators	1.0	1.0	1.0	1.0	
Administrative Support	2	2	2	2	
Other Staff	8.5	7.5	7.5	7.5	
Average Teacher Salary	\$42,451	\$44,431	\$45,151	\$46,406	\$47,644
Source: VT Dept. of Education					

Table 8.2
Northfield Middle & High School

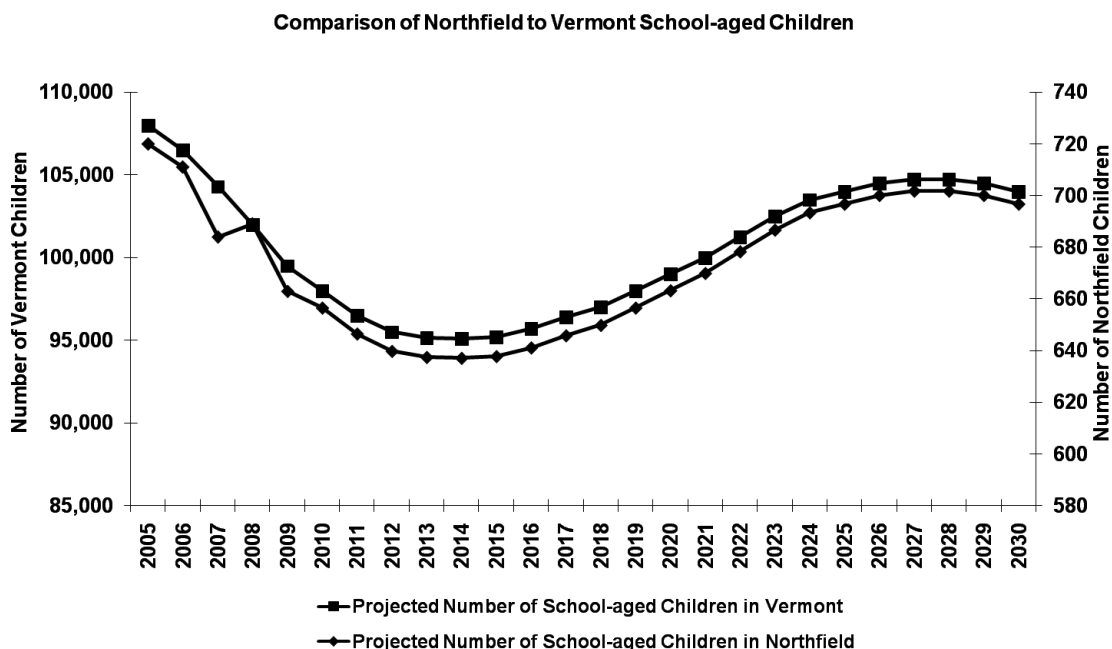
	2004-05	2005-06	2006-07	2007-08	Vermont (most recent)
Participation					
Total Enrollment	456	427	411	417	94,114
Attendance Rate	94.2%	94.0%	94.3%	No Data	No Data
Class Size					
Average Class Size	N/A	N/A	N/A	N/A	16.0
Student/Teacher Ratio	11.81	10.68	10.62	11.32	11.13
Eligible Special Education	17.1%	18.7%	18.2%	13.7%	14.9%
9-12 Dropout Rate	3.3%	5.7%	4.6%	2.5%	3.9%
Home Study (number)	6	6	7	7	2,096
Technology					
Students per Computer	8.3	6.3	5.1	N/A	5.0
Internet Access	Yes	Yes	Yes	Yes	Yes
Type of Internet Connection	Dial Up	Direct Link	Direct Link	Direct Link	N/A
Personnel (FTEs)					
Classroom Teachers	37	35	34.1	32.5	3,316.36
Other Teachers	11.5	9.7	10	10	
Instructional Aides	22.7	18.7	16.7	16.7	
Licensed Administrators	2.0	2.0	2.0	2.0	
Administrative Support	3.1	3.0	3.0	4.0	
Other Staff	11	9.5	9.5	8.1	
Average Teacher Salary	\$42,932	\$45,431	\$45,662	\$47,661	\$47,644
Mean SAT Scores					
Verbal	511	515	528	530	
Math	470	497	498	506	
% Seniors who took exam	N/A	N/A	63%	63%	
53% of the seniors who go on to college attend 4 year schools					
11% of the seniors who go on to college attend 2 year schools					
3% of grads enter the military					
Source: VT Dept. of Education					

The school's academic program includes college preparatory, business, and limited vocational courses. Curriculum is supplemented with vocational education provided by the Randolph Area Vocational Center, one of sixteen vocational centers serving local high schools around the state. High school students can take courses at Norwich University and Vermont Technical College in Randolph. In addition, the school offers Advanced Placement courses in English, Calculus, History, and Biology. The Washington South Supervisory Union Board (composed of three Roxbury representatives and five Northfield representatives) and both Northfield schools participate in VITA-Learn, the Vermont Information Technology Association for the Advancement of Learning, which encourages the use of information technology to meet Vermont educational standards.

8.3 Enrollment Trends

Enrollment in both the elementary and middle/high schools has declined in recent years. However, if state projections hold true, we should see this downward trend reversing by 2016.

Figure 8.1. Comparison of Northfield to Vermont School-aged Children



With regard to facility use, the declining enrollment has opened sufficient space to bring the middle school alternative program to the campus rather than continuing in rented space off-site. Because state education funds are tied to student numbers, declining enrollment presents a challenge to the school to maintain a full range of programs.

Development trends in the community and surrounding region, and municipal economic and community development policies and programs, can influence future enrollment trends by encouraging job creation and residential development in the community. Such growth would be beneficial to the school by helping to maintain a consistent student body while enhancing community vitality.

8.4 Cost of Education

Funding local education is the largest single expenditure for most Vermont municipalities, typically accounting for between 65% and 90% of all local tax dollars. With the passage of Act 60 in 1997 (first implemented in FY99), the state instituted a statewide property tax to fund education, and an income-sensitivity factor that limits the amount of education property tax to be paid by income-qualified Vermont residents.

The statewide property tax is calculated for each community using an “Equalized Education Property Tax Grand List,” as determined by the state based on estimates of the fair market value of all listed real property in the community. This is used to measure the property wealth of a school district. The 2008/2009 equalized statewide education tax rate is \$.87 and the equalized pupil general state support grant is \$8,210. Almost all districts spend above the grant, so a local share tax is imposed in addition to the statewide tax. This is the case in Northfield. The local share tax is determined directly from per pupil spending above the block grant. As a result, Northfield’s effective tax rate for education – \$1.28 in 2008 – is higher than the state average (\$1.23) for the same year. Added to the tax rate is a calculation for the Common Level of Appraisal (CLA). The CLA adjusts tax rates based on a state wide formula for measuring the accuracy of the grand list. In 2008 this calculation increased the tax rate by \$.23.

The citizens of Northfield passed a budget of \$10,190,845 for the support of education during the 2008-09 school year. Of this amount, \$1,976,859 (19.4%) came from local resident property taxes. The balance came from businesses, second homes, grants and aid from the State of Vermont and the Federal Government. Northfield also received \$394,300 in local income from tuition, interest, and rents. During the past four years, the Northfield School District Board of Directors has brought to Town Meeting budgets ranging from an increase of 3.16% to 5.94%.

8.5 Northfield Schools & the Community

The Northfield Community School Organization (CSO) was formed in 1988 and in 2005 changed to become the Northfield Parent-Teacher Organization (PTO). The PTO's focus is on grades Pre-K to 5. The PTO's mission is to provide services, information, and funding to develop programs that meet the diverse educational needs of our children and community. Core programs involve school community members in character development and support curriculum enrichment that help children to reach their full potential. PTO efforts serve to unify teachers and administrators with the goal of building an inclusive, engaged, and energized community. The organization is composed of volunteer parents, teachers, school administrators and community members. Several activities are sponsored by the PTO, including Artist in Residence programs, the Elementary School Store, Family Fun Nights, and fundraisers. These events help to supplement the school budget, field trips, and curriculum.

Among the most important issues raised at the Vermont Council for Rural Development’s community visit in January 2002, was the need to promote academic excellence in the Northfield School system. As part of that process, a group of local residents focused on the local school system’s strengths and challenges. Summaries of the three key challenges identified are:

1. Deficits in academic atmosphere, curricular opportunities, and performance.
2. A lack of field space for playground and sports.
3. A lack of sustained parental involvement and leadership toward academic, rather than athletic, excellence, especially for higher grades and high school.

8.6 Adult Education

Adult Education opportunities for Northfield residents are available locally through Norwich University and at various regional centers.

Regional Adult Education

The Community College of Vermont (CCV)'s Montpelier campus provides a variety of courses and degree programs. In addition, the Vermont Technical College in Randolph, the University of Vermont, and several other colleges in the Burlington area provide higher education opportunities for local residents. A growing number of opportunities for "distance learning" are available online and through the Vermont Interactive Television (VIT) site in Springfield.

A variety of adult basic educational programs are also available through Central Vermont Adult Basic Education, with offices in Barre, Montpelier, Randolph, Bradford, and Morrisville. A variety of instructional opportunities are available to adults in the program, including one-on-one tutorials, small group sessions, and regular classes. All of the available services are offered on a regular and flexible schedule. Basic education programs serve those who wish to improve their reading, writing, and math skills for use on the job or in daily life, those who are studying for their high school equivalency degree (GED) or adult diploma, or those who would like to learn English as a second language. Central Vermont Adult Basic Education also offers a family literacy program, a college readiness program, a work readiness program, and a computer training program.

Norwich University

Norwich University is the nation's oldest military college whose student body is composed of the Corps of Cadets and civilians with the majority belonging to the Corps of Cadets. The ROTC program at Norwich is represented by all branches of the armed services. The University offers state-of-the-art science, engineering, communications, nursing architecture, sports medicine, humanities, criminal justice, and liberal arts undergraduate degree programs, including several online post-graduate degree programs.

Higher Education Collaborative

The University of Vermont, Johnson State College and the Department of Education, through a collaborative effort, offer opportunities for continuing education beyond the Bachelor's degree in the field of education studies.

8.7 Education Goals, Policies & Tasks

Global Ends Policy E.00: District Mission: *"It is the foremost responsibility of the Northfield Town School District to educate students within the community's available resources and to graduate those students as informed citizens."*

The Northfield Board of School Directors has adopted the Policy Governance model for the operation of the school district. The policies adopted under this model all are formed to attain the ends summarized in the Global Ends policy, and delineated in the supporting ends policies. The supporting ends policies, currently under development, address the three areas of competence identified by the community as essential to an informed citizenry. These areas of competence are academics, citizenship, and character. Executive limitations policies give direction to the superintendent and staff in the implementation of practices designed to meet the ends identified by the community and adopted by the Board.

Chapter 9 Energy

9.1 Overview

Reliable, affordable, and sustainable sources of energy are vital to Northfield's economy, social welfare, and future development. Every individual, home, office and business in town relies on a variety of energy sources for transportation, heating, lighting, and the operation of equipment and appliances. International events and rising fuel prices are reminders, however, that too heavy a reliance on any one source of energy can leave the nation, and local residents and businesses, vulnerable to market changes and shortages. There is mounting evidence that our current patterns of energy consumption are contributing to global warming and climatic change which, if unchecked, will dramatically affect Vermont's climate over the next several decades.

Factors influencing the cost and availability of energy, at present, are largely beyond the control of the local community. Changing technologies, and evolving national and state energy policies – including utility deregulation, demand side management, infrastructure investment, and the promotion of more efficient and renewable “green” energy sources – all have an affect on local energy supplies. There are several things Northfield, and its residents and businesses, can do to influence our energy outlook, particularly to promote energy conservation and efficiency, and to encourage the development and use of alternative energy sources and technologies.

9.2 Demand

Statewide Trends

Information included in *Fueling Vermont's Future*, the state's 1998, 20-year comprehensive energy plan, indicates that overall energy demand continues to escalate statewide. This is due largely to a dramatic growth in fuel consumption for transportation, resulting from increases in both the number of vehicles on the road and total vehicle miles traveled. During the economic boom of the 1990s, commercial and industrial energy demand also grew significantly. Residential use also increased, but at a much slower rate. This is attributed to more energy efficient residential construction in recent years, and the wider use of energy efficient appliances.

Transportation currently accounts for about 43% of Vermont's total energy use, and space heating another 28%. Water heating (9%), process heat for industrial purposes (8%), and other miscellaneous uses (lighting, air conditioning, appliances, etc.), are responsible for the balance of the demand. Energy use varies by sector, as noted in Table 9.1.

Table 9.1 Principal Energy Use by Sector in Vermont			
Sector	Primary	Secondary	Tertiary
Residential	Transportation	Space Heating	Water Heating
Commercial	Transportation	Space Heating	Lighting
Industrial	Process Heat	Transportation	Motors
Source: <i>Fueling Vermont's Future</i> , VT Dept. of Public Service, 1998.			

Demand also varies by energy source. Petroleum is by far the predominant fuel used in Vermont, and will continue to be in demand well into the future, despite growing uncertainties regarding long-term oil supplies and crude pricing. Total electrical energy use has also risen steadily, despite efficiency gains. Propane (LPG) use is also increasing while wood, used mainly for home heating, has fluctuated over the years in relation to the price of heating fuel.

Total energy demand statewide is expected to increase 54% between 1990 (base year) and 2015. This increase will continue to stem largely from growth in the transportation sector, due to increases in the number of vehicles, miles traveled, and dispersed patterns of development.

The associated impacts of increased energy use are increasingly well documented. Motor vehicles fueled by petroleum sources are the state's largest source of toxic and carcinogenic air pollutants – the average vehicle emits about a half ton of air pollution each year. Vehicle emissions pose a health threat locally (even at low levels), contribute to acid rain, and can cause widespread damage to crops and forests. "Green house gases" such as carbon dioxide, emitted from motor vehicles and oil-fired furnaces also contribute to climatic warming.

Future energy expenditures are also expected to increase accordingly (1.7% per year through 2015), due to increased consumption levels and rising energy prices.

Global Warming in Vermont

According to the Intergovernmental Panel on Climate Change, temperatures in Vermont could increase by 6 degrees over the next few decades. This increase would make Vermont's climate more like that of New Jersey.

The result:

- More volatile and variable weather conditions
- Hotter summers, shorter fall foliage and ski seasons
- An increase in storm events and storm water runoff
- More frequent dry spells and water shortages
- Loss of hardwood forests, including the sugar maple
- Greater need for agricultural irrigation
- Loss of migratory bird, endangered species populations
- Introduction of warmer climate species and pests.

Source: *Climate Change and Vermont*, U.S. EPA, 1998.

Local Demand

There is much less information available regarding local energy use – particularly commercial and industrial use – but given available data, local use generally reflects state and national consumption patterns.

Municipal Energy Expenditures. According to annual report information, the Town and Village of Northfield spent in excess of \$300,000 on energy – electricity, gasoline and diesel fuel, and heating fuel – in 2007-08. The water and sewer operations accounted for 78% of total expenditures for electricity, and the highway operations accounted for 70% of the gasoline and diesel fuel expenditures.

Transportation. According to Vermont Agency of Transportation data, vehicle miles traveled annually on state routes through Northfield increased by nearly 3,300 miles (8%) between 1990 and 2000 – much less than the 15% increase in vehicle miles traveled countywide. Nevertheless, recent U.S. Census data suggest that Northfield residents are more auto-dependent than ever (Table 9.2).

Table 9.2 Transportation Indicators, 1990-2000				
	1990	2000	Change	% Change
Vehicles Available (# households)				
None	174 (10.4%)	112 (6.1%)	-62	-35.6%
One	565 (33.7%)	594 (32.6%)	29	5.1%
Two	718 (42.8%)	859 (47.1%)	141	19.6%
Three or more	219 (13.1%)	259 (14.2%)	40	18.3%
Commuting to Work (# employed)				
Drove alone to work	1,645 (67.8%)	2,017 (68.7%)	372	22.6%
Carpooled to work	282(11.6%)	361 (12.3%)	79	28.0%
Took public transportation	0 (0.0%)	5 (0.2%)	5	--
Walked or worked at home	441(18.2%)	520 (17.7%)	79	17.9%
Mean travel time to work (min)		21.1		
Aggregate travel time (min)	43,900.0	60,100.0	16,200	36.9%
Source: U.S. Census.				

The number of cars per household has grown, and 68% of Northfield's population continues to drive to work alone. Total commute time increased by 37% over the last decade. The number of employed working at home, walking, and carpooling also increased, but continued to represent approximately 30% of the town's working population. Of those walking or working at home in 2000, 86% lived in Northfield Village.

Home Heating. Home heating methods used by Northfield households are also reported in the U.S. Census (Table 9.3).

Table 9.3 Home Heating, 1990-2000				
Home Heating Fuel (# occ. units)	1990	2000	Change	% Change
Fuel oil, kerosene, etc.	1,076 (64.2%)	1,374 (75.3%)	298	27.7
Bottled, tank or LP gas	85 (5.1%)	217(11.9%)	132	155.3
Electricity	147 (8.8%)	80 (4.4%)	-67	-45.6
Wood	327 (19.5%)	151 (8.3%)	-176	-53.8
Solar	--	--	--	--
Other	3 (0.2%)	2 (0.1%)	1	-33.3
Source: U.S. Census.				

These data suggest that while fuel oil continues to be the predominant home heating fuel in Northfield, as it is throughout New England, there has been a shift from relatively expensive and inefficient electric space heating to more efficient and cleaner burning propane heat. These standards apply to commercial buildings, including multi-family dwellings, all new homes, and to residential additions over 500 square feet.

Wood, though a renewable and locally available fuel, has fluctuated in importance as a primary heating source. There has been growth in the use of wood pellets and pellet stoves in recent years. Solar energy is insignificant as a primary residential heating source, however new construction often incorporates passive solar orientation and techniques to reduce space-heating requirements.

9.3 *Energy Supply*

Electricity

The Village of Northfield Electric Department, under the authority and management of Northfield Village Trustees, is one of fifteen municipal utilities in Vermont chartered to provide electric service within its established service area. The department's territory now includes most of Northfield and parts of Roxbury and Berlin. A small area of Northfield is served by Central Vermont Public Service Corporation (CVPS), the state's largest electric utility, and Washington Electric Cooperative. Northfield Electric purchases approximately 5 MW of electricity for distribution to its customers under contracts through the Vermont Public Power Supply Authority.

The department serves approximately 1,600 residential and 180 commercial customers, and maintains a substation and approximately 25 miles of distribution lines within its territory. There are currently no commercial generating facilities in town. Line maintenance is contracted through Green Mountain Power. A recent substation transformer upgrade is expected to provide requisite capacity and reliable electric service for several decades. The capital budget anticipates continuing line and substation circuit upgrades, and pole replacements.

Fossil Fuels

Vermont has no petroleum infrastructure, and relies on tank trucks for its petroleum supplies. Residences and businesses are supplied by local fuel oil and propane distributors. Several gasoline stations in town serve local motorists and the traveling public.

Fuel prices are typically higher in northern New England, and have fluctuated dramatically in recent months. International events highlight our region's reliance on limited sources of fuel to supply most of our energy needs, and leave local residents – particularly low income residents – very vulnerable to fuel shortages and price fluctuations.

The environmental impacts of such dependence on fossil fuels are also prompting state efforts to diversify Vermont's energy portfolio, to include the use of cleaner, more efficient natural gas systems, co-generation systems that produce electricity and heat, and greater reliance on renewable energy resources, including wood, hydro, and wind power.

Renewable Energy

Renewable energy resources found in Northfield include wood, wind power, solar, and hydropower. The extent to which these renewable resources can be harnessed and used to replace other sources of energy must be investigated. Net metering, which allows utility customers with small-scale renewable energy systems to sell excess power back to the utility, may promote increased use of renewable sources.

Wood. Wood is a biomass fuel that is the town's most abundant renewable energy source. For much of Northfield's history, wood was the town's principal source of heat. It is a relatively low cost, renewable energy source that is not disrupted by embargoes, high transportation costs, or tariffs. The heavy use of wood for heating, however, can result in environmental degradation and air pollution.

Northfield has considerable forested land – including municipal forests – that under effective management could serve as a renewable source of wood heat. Extensive wood harvesting, however, if not properly managed, can cause increased storm water runoff and soil erosion, sedimentation, ground water and surface water pollution, and habitat loss. Woodlot management (and adherence to state accepted management practices for logging operations) reduces the adverse impacts of harvesting operations, and it can enhance local timber stands to meet a variety of landowner objectives – including fuel production and wildlife management.

Newer high efficiency wood stoves and furnaces, if properly installed and maintained, provide effective home heating. Stoves sold since 1990 must be airtight and meet EPA emission standards. The addition of catalytic converters reduces harmful emissions and particles that are released into the atmosphere. As noted, however, the number of homes in town using wood as a primary heating source has fluctuated in recent years. Though wood-burning technologies have improved, wood heat remains less convenient than oil or gas heat. It is anticipated that as heating oil prices increase, more households will use wood as a primary or supplemental heating source.

Wood is not currently used to heat Northfield's school or municipal buildings, but several other Washington County schools have shifted over to biomass (wood chip or pellet) heating systems under state-sponsored programs. Automated, wood-fired systems are proving to be an affordable heating alternative to conventional oil systems in such settings.

Wind. Wind is an emission-free renewable energy source that, with rapidly improving turbine technologies, is receiving increased interest statewide. In the late 1990s, the Public Service Department, with Green Mountain Power and other energy interests, conducted a statewide wind assessment to determine the potential for commercial wind energy development. This work was updated in 2002 to support the department's efforts to promote utility-based wind energy, and to address related installation issues. Areas identified as having wind energy potential include the ridgeline extending from Irish Hill to Paine Mountain, and south to Shaw Mountain east of Route 12, and the Northfield Range west of Route 12. Elevations between 2000 and 3500 feet above sea level are ideal for maximum power production. Wind energy projects also typically require transmission lines, substations, and access roads.

The extent to which local zoning can regulate wind generation facilities is not yet clear, since such facilities are also regulated by the Public Service Board and must be issued a Certificate of Public Good by the state. Potential impacts of such facilities, however, include aesthetic impacts associated with highly visible ridgeline development; potential impacts to wildlife and wildlife habitat in the vicinity; and potential safety hazards, when sited in close proximity to other development. Some of these impacts can be mitigated through careful site selection and design, as discussed in the Department's 2002 guide, *Wind Energy Planning Resources for Utility-Scale Systems in Vermont*, and related documents.

Hydropower. The Dog River and its tributaries provided waterpower for Northfield's earliest mills and manufacturing plants. Today these industries are gone, but the potential remains for small-scale hydropower development. This was long considered a particularly clean source of renewable energy. The environmental impacts of dam construction, operation and management – including the effects of changing water levels on river flow, stream habitat and water quality, and on adjoining riparian areas – are now given much more weight in federal and state dam

licensing procedures. There are few sites within Northfield that are suitable for utility-scaled power plants, but there may be opportunities to develop smaller “micro-hydro systems” to supply individual users, which would have much less impact on the local environment.

Solar. Solar energy, like wind and hydro, is one of the few energy resources that are not depleted with use. Advances in solar technology have made it easier, and increasingly affordable, for solar energy to be harnessed for residential space and water heating, and for electrical generation. Building orientation and site exposure are critical to access available energy. Northfield has some south-facing slopes that could provide access for both solar heating and solar power on individual building sites.

The contribution of solar energy to Northfield’s total supply is likely to increase only modestly over the next few years. More structures are being designed to take advantage of passive solar energy for heating and light; however not all structures can support the panels and systems needed to collect and store solar energy. Up front costs for materials and installation remain relatively expensive for the average homeowner, and Northfield may not have enough sunny days each year to ensure a reliable source of energy to justify the expense. Passive solar building design, however, can significantly reduce heating costs. Technological advances, including the incorporation of photovoltaic components in roofing and building materials, should make solar power a more viable source of electricity in the near future.

9.4 Conservation

The state’s energy conservation efforts since 1990 have focused on “Demand Side Management” (DSM) to increase energy efficiency, reduce energy demand, and in effect increase available energy supplies. In 1990, under order of the Public Service Board, electric utilities were required to develop a variety of demand side management programs for their customers, which have since been consolidated into one statewide energy efficiency utility – Efficiency Vermont. In recent years the state also passed energy standards for commercial and residential construction, which are administered and enforced through the Department of Labor and Industry. Net-metering to encourage the use of more decentralized, renewable energy resources went into effect in 1998, and legislation is now pending to promote greater energy efficiency and renewable sources through the use of tax credits and other state support programs. Legislation is also currently being considered that would establish minimum statewide outdoor lighting standards.

The need for increased energy efficiency and conservation, in part to reduce energy costs, is also recognized locally – particularly for Northfield’s older, historic homes and public buildings. For example, LEEDS Gold certification is the goal for the new dormitory at Norwich University. A number of programs are available to local residents and businesses to increase energy efficiencies and reduce costs.

Efficiency Vermont

Efficiency Vermont, created by the Public Service Board in 1999, consolidates the energy conservation programs offered by individual utilities into one statewide energy efficiency utility – a first in the nation. Vermont’s “Invisible Power Plant” to date has saved the equivalent of 11.8 MW during the peak winter period, and 6.2 MW at summer peak. Its efficiency programs are financed by the state’s electric utilities through an “energy efficiency charge” that appears on electric bills. There is a variety of programs available from Efficiency Vermont that can be found at their website at www.efficiencyvermont.com.

Transportation

Few alternatives currently exist that would allow Northfield residents to become less dependent on automobiles for transportation. Nevertheless, as gasoline prices climb and vehicle emissions continue to erode air quality, reasonable efforts should be made to promote ridesharing, alternative modes of transportation, and less auto-oriented patterns of development. The Central Vermont Transportation Authority provides information on carpooling, ridesharing, vanpooling, and special public transportation needs.

Local initiatives that could help reduce the number of vehicle miles traveled include the completion of the proposed bicycle and recreation path between Northfield Falls and Northfield Village, and the development of a local park and ride facility. Northfield could also take advantage of municipal programs offered through EVERmont, a nonprofit organization affiliated with the Agency of Natural Resources, which advocates for the use of cleaner, more energy efficient, alternative fuel vehicles (AFVs). AFVs include vehicles powered by electricity, compressed natural gas, propane, and biodiesel fuels.

Land Use & Development Patterns

As shown by the number of local residents who walk to work in Northfield Village, concentrated development can reduce reliance on the automobile, vehicle miles traveled, and inherent system energy costs, including energy costs associated with maintaining roads and related infrastructure. Clustering development in the vicinity of existing development and infrastructure, including roads and power lines, generally disturbs less land, and requires less energy to construct and maintain. Sidewalks and connecting paths encourage people to walk, rather than drive, to destinations within a quarter to a half-mile of where they live.

At the site level, a southern building orientation and landscaping can effectively reduce energy demand. Clustering, and other energy efficient development patterns can be encouraged, and/or required through local zoning and subdivision regulations.

Buildings & Equipment

In addition to the adoption of energy codes for residential, commercial, and public buildings, there are a number of other programs offered by the state to promote municipal energy efficiency and the use of renewable energy resources. These include but are not limited to the various programs offered through Efficiency Vermont, EVERmont electric vehicle leases, the School Energy Management Program (SEMP) targeted to school administrators, and programs to support the conversion of school heating systems to wood-burning systems.

Municipal energy savings can be realized through regular energy audits of municipal buildings and the use of “life cycle costing” practices that incorporate long-term energy savings in the fiscal analysis of facility construction and equipment purchases. Such costing methods often demonstrate that long-term energy savings more than offset the higher initial purchase or construction cost of energy efficient equipment and building improvements.

9.5 Assistance Programs

Rising energy costs for heat, electricity, and transportation are particularly hard on low-income households who can least afford them. Programs administered through the Central Vermont Community Action Council, which are specifically targeted to help income-eligible residents, include seasonal and emergency fuel assistance, supported in part through the WARMTH donations collected by private utilities, and free weatherization services to help reduce heating costs. Northfield can assist such programs by providing program information locally, and by continuing to support Community Action. Limited emergency fuel assistance is also available

locally through Community Emergency Relief Volunteers (CERV), which at present receives no municipal funding.

9.6 Energy Goals, Policies & Tasks

Goal

The availability of affordable energy supplies to meet the needs of current and future Northfield residents in a manner that maximizes energy conservation, maximizes the use of renewable resources, and reinforces traditional land use patterns and municipal development policies.

Policies

1. The availability of electric energy at reasonable cost to local customers through active involvement in the state's formulation of electric utility policy will continue to be ensured, to the extent of the municipalities' abilities.
2. Energy efficiency and conservation will be a primary consideration in new municipal construction projects, equipment purchases, and operations. Life cycle costing shall be used by the town in evaluating energy-related capital expenditures as appropriate.
3. Programs to assist low-income residents in meeting or reducing energy costs, including weatherization, rehabilitation, and affordable supply programs, will be supported by the town in relation to local need.
4. Reliance on single-occupant vehicles should be reduced through:
 - Maintaining, and improving, the local transit program (see Chapter 7);
 - Improvements to the Exit 5 Park & Ride Facility in Williamstown and the creation of a municipal commuter parking facility in or near the Village (see Chapter 7); and
 - Greater pedestrian opportunities, including the construction of the Memorial Park-Northfield Falls bike/pedestrian path and the Dog River path connecting the Village with Norwich University.
5. Renewable energy generation facilities in the community should be permitted after the community has developed standards to ensure such facilities will have minimal adverse impact to wildlife populations and water quality; will mitigate to the extent possible aesthetic impacts; will not cause a nuisance to the surrounding area (e.g., due to excessive noise) and will not result in undue risk to public health and safety (e.g., through a lack of security or uncontrolled access).
6. An adequate land base will be maintained for sustainable forest management through continued stewardship of public forest land, support for current use tax abatement programs for managed woodland, and land use regulations which discourage the fragmentation of large tracts of productive forest.
7. All decisions of Northfield's municipal government will require an increasing focus on the implications of energy use, cost, and transmission. Northfield will need to identify which energy challenges should be addressed by the municipality, and should adopt strategies to ensure that residents and businesses can continue to thrive.
8. Northfield citizens should determine the degree to which Northfield should focus on energy issues for action. There are many possibilities, although few that can be accomplished easily.

Tasks

1. Undertake an energy audit of existing buildings, and street light fixtures, to determine whether cost savings could be realized through greater efficiencies. [Staff]
2. Assess current energy use in Northfield to serve as a baseline for future planning and to enable more sophisticated cost estimation so that the municipality can respond effectively to energy use, cost, and transmission dynamics, and to estimate the dollar impacts of current and future energy choices. [Energy Coordinator]
3. Review and update as needed existing town policies, bylaws and ordinances to promote energy efficiency and conservation; to protect renewable energy resources and access for their sustainable use; and to support settlement patterns and site designs that minimize energy consumption. [Planning Commission]
4. Include an assessment of energy efficiency in the housing survey (see Chapter 4) to identify opportunities for significant energy savings. [Energy Coordinator]
5. Identify the potential for Northfield residents to participate in local activities that result in greater levels of weatherization or the switch towards wood as a heating fuel. [Energy Coordinator]
6. Evaluate local knowledge of, and access to, Efficiency Vermont programs to determine if local electric customers could make greater use of available programs. [Electric Department]
7. Investigate the potential role for a municipal energy coordinator to assist the town in understanding state and federal energy management resources, build awareness in the community of energy efficiency and potential alternative generation concepts, and coordinate the adoption and implementation of an energy plan. [Planning Commission]
8. Support the continued activity of the Northfield Energy Action Team. Encourage coordination with the Vermont Climate Action Network to monitor activities in other municipalities. [Energy Coordinator]
9. Examine the role of the municipal electric utility in promoting energy efficiency and in developing new energy sources. [Electric Department]
10. Develop criteria, standards, and policies for the siting and implementation of wind-energy facilities. [Planning Commission]
11. Review existing data to determine the feasibility of wind power in Northfield. [Planning Commission]
12. Explore opportunities for biomass-fueled combined heat and electricity generation. [Planning Commission]
13. Identify potential locations for solar power installations, such as the roof of the school. [Energy Coordinator]
14. Identify strategies to decrease reliance on single occupant motor vehicles as residents' primary mode of transportation. [Energy Coordinator]

Chapter 10 Land Use

10.1 Overview

Historically, land use and development patterns were largely influenced by dominant transportation networks and economic systems. As Northfield's economic base has changed, and transportation networks have become more dispersed, land use patterns have become less dependent upon these factors.

To address modern development pressures in a manner that protects the health and safety of local residents and promotes community interests, such as maintaining a healthy environment and a vibrant economy, the Town and Village have enacted rules and regulations to guide land use and development. A principal purpose of the municipal plan is to provide the foundation for those regulations, and to identify other policies and actions that can be taken to support the future land use plan. This is especially important today, as the Town and Village appear to be poised for a period of renewed growth and new development.

10.2 Settlement Patterns

Although significant changes have occurred over the past 100+ years, a citizen of 19th century Northfield would likely recognize the community today. The historic settlement pattern remains largely intact; it is characterized by four village centers built adjacent to power and transportation networks, and surrounded by rural countryside, including scattered homesteads in more accessible stream valleys and limited or no development in rugged, inaccessible upland areas.

Village Centers

Linear, automobile-oriented development along the Route 12 corridor has blurred the boundaries of Northfield's historic village centers. The four villages are distinct in character and function, and, in combination, continue to serve as the civic, commercial, cultural, industrial, and residential centers of the community.

Beginning to the north, along the Berlin Boundary, Northfield Falls retains much of its historic character. With the exception of a handful of small commercial businesses located along Route 12, "The Falls" is a predominately residential neighborhood. The boundaries of Northfield Falls are fairly well defined. The rural Dog River Valley stretches north toward Riverton. A rugged, ledge terrain and the Dog River form a physical and visual break from Northfield Village to the south; steeper terrain, and four covered bridges, forms a clear boundary to the east and west.

Northfield Village is the main hub of the community. Centered on Depot Square, Northfield Village functions as the community's downtown, and is the site of historic residential

Table 10.1 Northfield Current Land Use	
Land Use Category	Total Acres
Agriculture/Open Land	3,701.2
Cemetery	24.9
Commercial/Service	45.3
Forest Land	37,331.0
Industrial	70.3
Government/Institutional	10.8
Outdoor Recreation	215.6
Residential	695.5
Roads/Pavement	10.5
Quarries/Gravel Pits	12.1
Schools	108.5
Scrub/Shrub	605.8
Surface Waters	94.7
Wetlands	23.5
Barren/Other	9.8
Source: Central VT Regional Planning Commission	

neighborhoods. The incorporated boundaries of the Village stretch well beyond the downtown and surrounding neighborhoods, nearly a mile north along Route 12, and encompass the community's principal industrial and commercial development.

The Center Village, home to Norwich University and located mainly in the Town, may at first appear to a motorist heading south on Route 12 as an extension of Northfield Village. The physical presence of the University, however, sets this area apart from the Northfield Village. With over 1400 students living on-campus, coupled with surrounding houses and apartment buildings, the population of Center Village may nearly equal that of Northfield Village while school is in session. The land use pattern of Center Village is as much created by the campus setting, with buildings oriented more toward, and relating to one another, and to formal open space (e.g., quads, parade grounds), than to the street as is the case in Northfield Village.

South Village, centered on the Interstate 89 access road, is the least developed, and least defined, historic center.

The four villages have all served as historic centers for community growth. They also are well suited to serve as the focus of much of the growth and development anticipated in future years.

Rural Areas

Historic development in Northfield's rural areas outside of the four villages has primarily consisted of single-family dwellings associated with agriculture and resource-based commercial activities (e.g., sawmills, gravel extraction). Most of this activity occurred in the small valleys formed by major tributaries to the Dog River, including Cox, Union, Stony, and Felchner Brooks, and on the most level land in upland areas. Large areas of farmland remain open.

With the decline of agriculture – and the decline of the steam engine and its thirst for fuel wood – came the return of the forest. Forests now cover the vast majority of the total acreage of the town, covering nearly all of the steep hillsides and mountainous land in the Northfield Range and on Turkey Hill and Paine Mountain. Despite all other changes the Town has experienced, the return of the forest may well be the greatest land use change of the past century.

Forest land – whether actively managed for timber production or large tracts of wooded land associated with rural-residential uses – is by far the dominant land use in the community, encompassing nearly 87% of the total land area of the Town.

Agricultural and open land is the second most common land use – in terms of total acreage. Although there currently are no working dairy farms, other commercial agricultural enterprises presently exist in Northfield, including but not limited to vegetable, flower, and sheep, pig, and goat farms. Open land associated with residential uses continues to contribute to the rural character and scenic beauty of many of Northfield's back roads and rural neighborhoods. This sentiment is apparently shared by many local landowners who are responsible for keeping the land open.

The dominant land use in terms of total parcels is for residential purposes. Much of Northfield's residential development is concentrated in village neighborhoods – especially in Northfield Village and Northfield Falls (see Chapter 5). In recent years, however, the majority of the new residential development has occurred outside of the traditional centers. Primarily consisting of single-family homes on large lots, most residential development is expected to continue to occur in areas outside of the villages unless additional opportunities for village-scale development, such as in-fill development and redevelopment of village sites, can be facilitated.

Land owners of large parcels are encouraged by the Town of Northfield to enroll their property into the Vermont Department of Taxes current land use value appraisal program. They may also

consider working with a land conservation group such as Vermont Land Trust to ensure that the scenic beauty and open land outside of the village centers is preserved into the future.

Subdivision of large parcels of land in areas that are designated as conservation areas by the Town of Northfield should be done in a way to cluster the development and allow for the remaining land to stay open for recreation, wildlife habitat and scenic preservation.

Industrial development encompasses 70 acres, although additional vacant land has been identified for industrial development and is presently served by municipal facilities. Most industrial sites are located in Northfield Village, primarily the Nantanna Mill, Bean Industrial Park, and railroad property west of the downtown.

Commercial land uses are largely found in the downtown and north of the downtown in a low-density linear pattern along Route 12 and, to a limited extent, in Northfield Falls and South Village. Educational uses include the Northfield schools and Norwich University campus, while most other governmental and institutional uses are located in Northfield Village. An estimate of current land use, by general category, is contained in Table 10.1, above.

10.3 Current Land Use Regulation

The Town and Village have been actively guiding land use and development in the community for several decades through the use of development regulations. The current zoning regulations are generally designed to reinforce Northfield's historic settlement pattern of an urban core along the Dog River/Route 12 corridor north from the Berlin Town boundary south to the area surrounding intersections of Route 12 and Route 12A, and Route 12 and Route 64. This core area encompasses each of the four historic villages.

Outside of the urban core, land is generally designated for moderate to low-density residential uses and such land-based uses as agriculture, forestry, and outdoor recreation. Two limited commercial areas are also located outside of the urban core, although neither is served by municipal water or sewer. A brief description of current land use districts is provided in Table 10.2.

The Town also does not have well-developed subdivision regulations. As more residential development occurs in the rural residential, secondary agriculture and conservation and forestry districts, more effectively regulating land subdivision could help to achieve the zoning districts' purposes while ensuring the orderly layout of new development and coordinated extension of facilities and roads.

Within the urban core, site development standards could address how new buildings and associated improvements (e.g., lighting, parking, sidewalks) relate with the surrounding area, enhance streetscapes, and contribute to the pedestrian-scale, urban fabric of the community. This is especially important as in-fill development and redevelopment occurs in and around the downtown and along the Route 12 corridor.

Options for improving Northfield's land use and development regulations to achieve the assorted policies of this plan, including those related to economic development, housing, transportation, and the protection of natural and cultural features, are described in the following section.

Table 10.2
Northfield Land Use Districts

Land Use District	Purpose	Density
Urban Residential	To allow for a mix of uses, including commercial, mixed residential and institutional, at moderate densities in unincorporated village centers and adjacent areas.	0.25 acre (water & sewer) 0.5 acre (water or sewer) 1.0 acre (no water/sewer)
Low Density Residential	To allow for predominantly single-family residential and public uses, at moderate densities, in portions of the incorporated village that are less accessible and may not be served by public facilities.	0.25 acre (water & sewer) 0.5 acre (water or sewer) 1.0 acre (no water/sewer)
Residential A	To reinforce historic residential neighborhoods and limit uses other than one and two-family dwellings to public facilities and offices.	0.25 acre
Residential B	To support a mix of uses at moderate to high densities within and immediately surrounding Northfield Village's downtown area	0.25 acre
Business (Commercial)	To support a full range of mixed commercial and high density residential uses within the historic downtown and other appropriate locations within the incorporated Village.	0.25 acre
Industrial	To support mixed commercial and manufacturing uses in appropriate locations, including historic industrial sites and planned industrial parks.	0.5 acre
Industrial (Commercial)	To allow for the continuation, and careful conversion, of industrial uses in a portion of Town historically used for such purposes.	0.5 acre (water or sewer) 1.0 acre (no water/sewer)
Mill Hill Industrial	To provide for an area capable of accommodating concentrated commercial and industrial uses related to the area's proximity to I-89.	1 acre
Rural Residential	To allow for low agriculture, forestry and moderate to low density residential development in rural areas of Town served by Town roads.	3 acre (<1/4 mile of road) 5 acre (other)
Secondary Agricultural	To encourage agricultural and forestry uses on land characterized by primary agricultural soils and traditionally used for farming, while allowing low density residential uses.	5 acres
Conservation & Forestry	To limit development in upland areas (generally elevations of 1,800' and above) characterized by steep slopes, thin soils and poor access, and to allow forestry and low-density residential development in such areas.	10 acres
Recreation	To maintain areas dedicated to outdoor recreation uses.	5 acres

10.4 Future Land Use

Urban Core Growth Center

Northfield's historic settlement pattern of compact villages surrounded by rural countryside has served the community well for nearly 220 years and should continue to support a vital and diverse community. Although concentrating development in village, or "growth," centers is not as important for economic and transportation purposes as it once was, supporting growth centers is good public policy in that it:

- Is cost-effective by limiting expensive facility extensions into un-served areas,
- Maintains the community's historic character,
- Is an efficient use of land and resources,
- Promotes transportation alternatives, thereby conserving energy and ensuring that all citizens have access to services and employment,
- Promotes economic vitality, and
- Avoids social isolation and fosters a healthy, safe community.

The urban core as presently defined should continue to accommodate a majority of the community's residential growth and nearly all of its commercial and industrial growth. Existing land use regulations could, however, better achieve this objective – and strengthen existing settlement patterns – through the following:

- Designation of a central business district, including but not necessarily limited to the historic downtown around Depot Square and adjacent land. Such a district could correspond to a designated downtown district (see Chapter 6), and should include dimensional and other site design standards that reflect existing patterns. Current setbacks, building coverage and on-site parking requirements discourage a high density of development and likely cause many important buildings that contribute to the character of the downtown to be non-conforming.
- Maintenance of the Industrial District by carefully considering the allowed uses to ensure that adequate space is available for manufacturing and related business and that industrial districts are not dominated by retail uses that could detract from the downtown or existing shopping centers.
- Evaluation of the uses allowed in the Urban Residential District to determine whether all presently allowed commercial uses – including retail – are appropriate throughout the district, or whether a greater focus on residential uses could help channel anticipated residential development into the urban core.
- Review of Planned Unit Development (PUD) provisions to ensure that they are practical, provide a reasonable incentive to applicants to seek application, and will allow for attractive, high quality master-planned development in appropriate areas. Consideration should also be given to developing specific PUD standards to address different development contexts (e.g., university campus, industrial park, downtown development).

Rural Character

Land use and development is currently regulated with the intent to maintain the rural character of the countryside that surrounds – and stands in contrast to – the village centers. As the community grows, it is anticipated that much of the pressure for residential development will focus on these areas due to the availability of land, transportation technology that allows access to remote locations (e.g., prevalence of four-wheel drive vehicles), and a desire of many

homebuyers for a rural lifestyle. Methods to achieve this goal while accommodating anticipated residential development include:

- Review the effectiveness of the secondary agriculture district. While established to maintain agricultural land, the only significant difference from the rural residential district is density (the rural residential district allows 3 acre lots within ¼ mile of town roads, compared with a 5 acre minimum lot size in the secondary agriculture district).
- Review of the Conservation and Forestry District to determine whether additional standards are needed to achieve the purpose of the district, including standards to address development on steep slopes and associated erosion and runoff.
- Consider (in addition, or as an alternative to, the options described above) the adoption of subdivision regulations to guide emerging settlement patterns in a way that reinforces the objectives of each respective zoning district, and ensures that development patterns, infrastructure and roads are extended in an orderly, coordinated manner.
- Review industrial and commercial districts and consider whether uses allowed within these districts are best suited for locations within the urban core where municipal sewer and water facilities presently exist.
- Review Planned Unit Development (PUD) provisions and consider whether they adequately address rural residential land use concerns, and whether they could be strengthened to foster clustered residential development which encourages clustering and the preservation of open space.

10.5 Land Use Goals, Policies & Tasks

Goal

To maintain the historic settlement patterns of the Town and Village, while managing development in a manner consistent with the other Goals and Policies of this Plan.

Policies

1. Development will be encouraged, through land use regulations and related policies of this Plan, to locate within the urban core, defined as the land use districts identified in Table 10.2 and depicted on the Land Use Districts Map (which comprises this Plan's future land use map), and to accommodate land uses outside this core in a manner that maintains those areas' natural resources and rural character.
2. Infrastructure and transportation improvements will be coordinated with land use policies to ensure that growth and development occurs at a rate and scale that does not overburden community facilities or services or undermine the community's historic character.
3. Northfield Village's role as the cultural, civic, and industrial center for the community should continue to be supported.
4. Development in traditional village settings should be designed to reflect the traditional, pedestrian-scale of development, maintain an aesthetic streetscape, and contribute to the historic character and pattern of development.
5. The downtown area's central commercial, civic and cultural community function will be reinforced through a concentrated mix of land uses at high densities and an urban pattern of development.
6. The vitality of Norwich University should be supported in a manner that enhances the attractive campus setting, efficiently uses existing land, and discourages encroachment into nearby residential neighborhoods.
7. The historic heritage of Northfield Falls and neighborhoods in Northfield Village should

be maintained while accommodating compatible commercial uses that do not detract from the surrounding residential character.

8. Designated industrial facilities and land should be developed and/or occupied before designating new areas for industrial development.
9. Development in the Conservation and Forestry District should be carefully controlled in order to avoid adverse impacts to water quality from erosion and storm water runoff, and to avoid the fragmentation of wildlife habitat. Consider developing an overlay district to protect ecologically sensitive resources (see Chapter 2, Task 2).
10. Residential development and associated land subdivision in rural districts should ensure that it occurs in a manner that does not result in an undue adverse impact to natural and cultural resources described in Chapter 2.
11. The clustering of development and preservation of open space associated with residential subdivisions outside of the urban core is strongly encouraged.
12. Land use regulations shall be administered in a fair, efficient, and impartial manner.

Tasks

1. Undertake a review of the current zoning regulations and consider making revisions outlined in Section 10.4 of this chapter (such revisions are not referenced as a policy of this Plan; they are a guideline for community consideration after Plan adoption). [Planning Commission]
2. Consider regulatory incentives for the provision of affordable housing and the preservation of historic resources, as outlined in Chapters 2 and 5 of this Plan. [Planning Commission]
3. Consider adopting subdivision regulations to better guide settlement patterns and the extension of facilities. [Planning Commission]
4. Monitor development activity and actively represent the Town before state regulatory proceedings (e.g., Act 250) to ensure that determinations of a proposed project's compliance with this plan are accurate and reflect community consensus. [Planning Commission, Selectmen, Staff]
5. Maintain a database of recent development and permit trends on an annual basis. [Staff]

Chapter 11 Implementation

11.1 Overview

Community change is the result of countless individual and collective decisions and actions of citizens, businesses, and public officials. When those decisions and actions are based on a shared vision of the future, a community can achieve that vision. Previous chapters of this plan set forth the planning background, and the goals for each plan element which, taken together, constitute a vision for Northfield's future. Achieving those goals will require the cooperation of many people and public and private agencies, using a variety of mechanisms over the next five, ten and twenty years. This section briefly describes the different tools and programs available to implement the plan.

11.2 Plan Adoption

Adoption by the Northfield Boards of Town Selectmen and Village Trustees, pursuant to the procedures established in 24 V.S.A. Chapter 117 §4384 and §4385, is the first step in putting

the plan into action. Through adoption, the Selectmen and Trustees accept this document as the guide for future physical growth and change in the Town and Village.

11.3 Central Vermont Regional Planning Commission (CVRPC) Approval

Approval by the CVRPC allows for greater regional planning and cooperation among towns in addressing mutual problems and challenges, maintains the Town and Village's eligibility for municipal planning funds as well as its authority to enact certain programs (e.g., impact fees). Once the plan is approved by the Town Selectmen and Village Trustees, it should be submitted to CVRPC for regional approval.

11.4 Ongoing Planning

Ongoing planning is one of the most important elements of the process of keeping a town plan up to date and relevant. The Planning Commission, Selectmen, Trustees and Town and Village Staff should use the plan on an ongoing basis to ensure that its goals and policies are integrated in day-to-day decisions concerning public facilities and services, transportation, land use, and development in the town.

The Planning Commission is responsible for maintaining and amending the plan. As conditions change and new information becomes available, amendments may be needed to keep the plan current. Special studies, public forums to consider specific issues, and regular meetings between local boards are effective ways to sustain an ongoing planning process. The plan automatically expires five years from adoption. Before the Plan expires, it should be thoroughly reviewed, and information on which the plan is based should be updated.

11.5 Municipal Land Use & Development Regulations

This plan should serve as the blueprint and policy guide for future revisions to the Northfield Zoning Regulations. Several suggestions for revisions, or for additional study, were described in various chapters of the plan, most importantly Chapter 10. In addition to consideration of revisions to the current zoning regulations, it is recommended in Chapter 10 that consideration be given to adopting subdivision regulations.

11.6 Other Municipal Policies & Programs

Local land use regulations are not the only means with which Northfield can implement various sections of this plan. Other ordinances and policies can also serve to carry out policies and strategies described in previous chapters. For example, the municipal sewer allocation policy and local road policies were both identified as important tools to implement various policies of the Plan. Throughout the plan are several specific references to appropriate local implementation policies, as well as guidance to regional organizations and state agencies as to how their programs can best meet local needs and ensure consistency with local policies.

11.7 State Permit Procedures

Presently, any commercial development involving one or more acres of land, and any residential development or subdivision resulting in the creation of 6 or more dwelling units or lots, requires Act 250 approval. If the town did enact subdivision regulations, in addition to having zoning and a town plan in place, then the threshold triggering Act 250 review would increase to 10 acres and 10 dwelling units.

One of the 10 criteria that projects must meet to comply with Act 250 is that the development be in conformance with the town plan. In the case of Northfield, conformance should be determined

by whether the proposed development is consistent with specific policies listed at the end of chapters 2-10. If a project is not consistent with a specific policy, it should be determined to be not in conformance with the plan.

Both the Planning Commission and Select Board have party status to participate in all Act 250 review processes. Both bodies should monitor project applications, which are reported to the town by the District 5 Environmental Commission, and participate in those processes whenever appropriate. Other state and federal regulatory processes, for example Section 248 (related to public energy facilities) and the National Environmental Protection Act (related to federally funded projects) also provide opportunity for local participation and review against the policies set forth in this plan.

11.8 Public Spending

Like most small Vermont towns, Northfield has a limited capacity to raise and spend tax dollars on local government initiatives. Spending decisions are among the most important means with which municipal government can implement the plan. Fortunately, the Town and Village have a history of planning for major expenditures through the annual preparation of a capital improvement plan and program. It is not only fiscally responsible to maintain the capital budgeting process, but it is required for eligibility for state community development programs.

In addition, Northfield has been able to secure assistance for specific projects through public and private grant sources. The development of this plan in 2004 and the public process in 2009, for example, were both funded through the Vermont Municipal Planning Grant Program. The Town has also been successful competing for a variety of VTrans assistance programs. All local boards should keep themselves informed of funding opportunities that further the policies of this plan.

Capital projects and facilities are not the only important consideration related to public spending. A key policy and task of this plan is to expand the local community and economic development capacity through the creation of a position of Community Development Director. The creation of this position will be a good public investment in that a local person and/or entity focused on the promotion of economic development in Northfield will reap many positive benefits, including growth in the local grand list and job base.

11.9 Implementation Tasks

Most of the tools summarized above are described in greater detail elsewhere in the plan. At the end of each preceding chapter, implementation tasks list specific actions that can be undertaken by one or more specified bodies. These form the basis of the Planning Commission's action plan in the coming years, and should be periodically reviewed as a measure of the Commission's success implementing the plan.