
**SHELBURNE COMPREHENSIVE PLAN
2014**

VOLUME II

**DATA, BACKGROUND INFORMATION,
AND ANALYSIS**

[As approved by Selectboard
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[Acknowledgements]

[The significant and lasting contributions of all those who participated
in the development of this Plan are hereby acknowledged,]

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I. INTRODUCTION

The Shelburne Comprehensive Plan (“Plan”) is a policy document created to guide development and conservation in the Town. The Plan was created by a group of citizens who share deep respect for the Town's past, who understand present conditions and trends, and who sincerely wish to advance the aspirations residents have for the Town's future. As the principal comprehensive statement of land use policy for the Town of Shelburne, the Plan is meant to direct Town efforts in land use planning and growth management, the provision of public facilities and services, environmental protection, land conservation, and sustainable economic development.

A. ORGANIZATION OF DOCUMENT

The Plan is divided into two volumes. Volume 2—this volume—consists of important background information and analysis. The information and analysis contained herein highlight aspects of the community likely to contribute to or detract from the realization of the Vision set forth in Volume 1. Text contained in Volume 2 is also intended to clarify, where appropriate, the meaning of statements contained in Volume 1.

Volume 1 contains the Plan's Vision Statement, Goals, Objectives, and Recommended Actions. Volume 1 is the culmination of a multi-year process (initially undertaken during 2005-2007 and revisited in 2010-2013) involving careful inventory, analysis, public involvement, and policy formulation. As the statements contained in Volume I lay out steps to realize the Town's desired future (i.e., its Vision), all future land use decisions made by the Town should conform to the applicable Goals, Objectives, and Recommended Actions.

The Plan also contains an extensive series of maps. The maps are published under separate cover but are considered an integral part of the Plan.

B. AUTHORITY

The Town of Shelburne is authorized to prepare and implement the Comprehensive Plan by the Vermont Municipal and Regional Planning and Development Act (Title 24, Vermont Statutes Annotated, Chapter 117). The stated purpose of the Act is

to encourage the appropriate development of all lands... in a manner which will promote the public health, safety against fire, floods, explosions and other dangers; to promote prosperity, comfort, access to adequate light and air, convenience, efficiency, economy and general welfare; to enable the mitigation of the burden of property taxes on agricultural, forest and other open lands; to encourage appropriate architectural design; to encourage the development of renewable resources; to protect residential, agricultural and other areas from undue concentrations of population and overcrowding of land and buildings, from traffic congestion, from inadequate parking and the invasion of through traffic, and from the loss of peace, quiet and privacy; to facilitate the growth of villages, towns and cities and of their communities and neighborhoods so as to create an optimum environment, with good civic design; to encourage development of a rich cultural environment and to foster the arts; and to provide a means and methods for the municipalities and regions of this state to plan for the prevention, minimization and future elimination of such land development problems as may presently exist or which may be foreseen and to implement those plans when and where appropriate.

Introduction

The Act contains several requirements governing the content and extent of municipal plans. Some of these requirements identify specific elements municipal plans must include, while others establish goals and policies which, if relevant, plans must address. Both types of requirements have guided the development of the Shelburne Comprehensive Plan. The lands which are the subject of this Plan are shown on Map 1, Shelburne Base Map.

C. IMPLEMENTATION AND AMENDMENT OF THE PLAN

The Plan will be implemented through local, regional and state regulatory processes, through the work and actions of various Town committees and boards, and through the activities of Town government departments. Regulatory forms of implementation include the administration of the Town's zoning and subdivision bylaws and use of the Plan in the "Act 250" (state land use and development control) and "Section 248" (certification of energy and utility facilities) processes. Non-regulatory forms of implementation include the updating and amendment of Shelburne's capital budget and program and public works specifications.

Upon adoption of this Plan, the Town's bylaws, capital budget and program, and public works specifications, will be reviewed and revised, where necessary, to be consistent with the goals and objectives of this Plan.

Consistent with state law, the Planning Commission will endeavor to update this Plan every five years. However, the Commission may—and likely will—review and evaluate the effectiveness of the Plan in attaining and implementing the goals of the Plan more frequently than every five years.

II. HISTORY

Many people believe that before charting a course towards its future, a community should first look back and assess its past. To that end, the following paragraphs present an overview of Shelburne's rich history in the years since settlement by Europeans. The land that became Shelburne may have been occupied, at least occasionally, by indigenous peoples as many as 7,000 years prior, during what is known as the Archaic period. In the period between 1,000 BC and AD 1600, more permanent settlements of native peoples known as the Abenaki were present.

A. CHARTER

The Town of Shelburne was chartered on August 18, 1763. In that year, Governor Benning Wentworth of the New Hampshire Colony granted charters to thirty-seven towns. Controversy had developed between the New Hampshire and New York colonies over sovereignty of the Vermont Territory, and the outcome was in doubt. Since Wentworth stood to lose a great deal financially if it were decided that the lands were not his domain, he quickly disposed of much of his land in 1763.

The Town of Shelburne was named for the Earl of Shelburne, a member of British Parliament who had championed the claim of New Hampshire to lands between the Connecticut River and Lake Champlain.

The Town was originally granted a total of 23,500 acres. However, when a survey was completed, a large portion of this land was found to overlap land claimed by Burlington. Since Burlington's charter was a month older than Shelburne's, its claim took precedence. Burlington's claim originally included part of Shelburne Point, but in 1794 the State Legislature returned that land to Shelburne. In 1848 an additional portion of land was given to the Town of St. George, reducing Shelburne's size to roughly 60 percent of the size of the original grant.

B. EARLY SETTLEMENT

Of Shelburne's sixty-five original proprietors, only John Potter was to actually live in the Town. Potter settled at Shelburne Point in 1768 with Thomas Logan, and the two became associated in transporting oak timber rafts to the Quebec market. On returning from a delivery to Quebec in 1775, they were murdered by two escorts assigned to provide them protection. Potter and Logan, however, are credited with opening the lumber trade with Canada during the preceding seven years.

Although Potter and Logan were Shelburne's first known settlers, Lyman Thayer, the nineteenth century town historian, has stated that an Indian village and burying ground were located at the head of Shelburne Bay, near where the LaPlatte River and McCabes Brook, formerly known as Cogman's Brook, converge.

By the time of the American Revolution, about ten families had settled in Shelburne near the Lake. However, the unrest caused them to leave for points south. The Town did not begin to see resettlement until 1783. By the time the first town meeting was called in March of 1789, twenty-four families resided in Shelburne. By 1791, the United States Census recorded a Town population of 389 people.

Shelburne History

C. EARLY ECONOMIC ACTIVITIES

The earliest settlers were farmers. Eventually, as support services developed, more concentrated patterns of human settlement emerged. Lazel Hatch constructed the Town's first sawmill east of the present Shelburne Inn in 1784, in the area now known as Shelburne Village. However, with the construction of a log bridge across the LaPlatte River in 1785, Shelburne Falls became the Town's first major activity center. A dam was soon built, and a sawmill was located on the south side of the river. In 1786 a dam was constructed on the lower side of the Falls, which was followed by the construction of a grist mill in 1789.

In 1789, the public road from Middlebury to Burlington (now U.S. Route 7) was opened by Captain Benjamin Harrington. The access provided by this road created a locational advantage for the Village area which ultimately became the dominant village center.

In the 1790's, the settlement pattern was less clear. There were two distinct settlements -- one taking advantage of water power at the Falls, and one capitalizing on the convergence of two main roads. In 1796, Benjamin Harrington built a hotel just north of the potash factory, and this helped to establish the pattern of the Falls as the manufacturing center and the Village as the center of commerce.

There were, of course, other smaller centers throughout the town; most often at crossroads marked with a school (there were thirteen school districts in Shelburne in 1840). Two such centers found on maps dated 1857 were located at Barstow Road and at the four corners of what is now Southern Acres Farm.

In 1835, the saw, grist and woolen mills in Shelburne Falls were supplemented by the addition of a tannery shop on the west side of the river, and a blacksmith and triphammer shop on the east side. The Village had also experienced growth, containing at this time two stores, a tannery, and a shoe shop, as well as the potash manufactory. The White Church (Congregationalist - completed in 1807) was used for Town Meetings.

Shelburne's farmers were active in a variety of agricultural endeavors. In general, the western part of Town, which enjoyed the moderating influence of Lake Champlain, was known for its fruit orchards, while the eastern part of Town specialized in grain production. Figures from the year 1840 (found in the 1842 edition of Thompson's Gazetteer of Vermont) indicate the following output: 1,768 bushels of wheat, 772 bushels of barley, 11,545 bushels of oats, 944 bushels of rye and 462 bushels of buckwheat. Also produced were 35,281 bushels of potatoes, 2,158 tons of hay and 1,220 pounds of sugar. In that same year, the Town's 17,376 sheep produced 36,677 pounds of wool. This period marked the height of the Merino Sheep raising in Vermont. Shelburne's location on Lake Champlain and its connections to outside markets helped the Town shift from self-sufficient family farming to commercially oriented farming.

D. RAILROAD ERA AND AFTER

In 1849 the Rutland Railroad began to stop in the Village. In turn, the railroad opened a far greater market for the Town's farming community. The farms gradually changed to dairy farming, producing cheese and butter for export. A very successful cheese factory was constructed as early as 1871 south of the Village on Falls Road. Another cheese factory served farmers in the northeast corner of Town. In 1879, New England's first butter creamery opened in Shelburne.

In the 1880's, the Shelburne Flouring Mills were still in operation, as was the sawmill which did custom work at a volume of about 150,000 board feet annually. Large fruit shipments were made from the Town's 27 orchards (17,749 fruit trees). Baldwin and White's Refrigerator Manufactory employed between fifteen and

twenty men. The manufacture of steamboats continued, as it had since the 1820's, at the Shelburne Shipyard on the eastern shore of Shelburne Point.

Although the Town's population declined between 1870 and 1880, the number of dwellings in the Falls and Village areas seems to have doubled. Each area contained about 30 dwellings. This suggests that fewer people were working on the farms and opting instead to work in Shelburne's manufactories and shops. This is borne out by an examination of houses in the Village and Falls. The dominant architectural style dates from the late 1870's and 1880's. On the other hand, most existing farmsteads appear to date from the 1810 to 1850 period.

During the period 1880 to 1890, Shelburne's population increased from 1,096 to 1,300. This increase reflects the impact of Shelburne Farms. In 1866, Dr. and Mrs. W.S. Webb began purchasing farms on the western side of Town, eventually acquiring a total of 3,800 acres. On this estate, the Webbs constructed an impressive array of farm and residential buildings. The high point of construction activities was reached in about 1890, and accounts for the increase in population (even though most of the previous owners of the farms left Shelburne). When construction was completed (at about the turn of the century) the Shelburne Farms operation provided less employment than did the construction period, and the Town's population dropped to 1,202 in 1900.

The establishment of Shelburne Farms considerably altered the agricultural base of Shelburne. Dairying and fruit production were of less importance on the large estate than they had been on the smaller family farms. In a sense, over one-fourth of Shelburne's prime land was removed from what had been conventional agricultural production.

E. TWENTIETH CENTURY AND BEYOND

With the increased industrialization of America in the twentieth century came the ready availability of mass produced goods. Many of the support services previously found in small farming communities were no longer needed. Burlington developed as a regional center for Chittenden County, meeting many of Shelburne's needs. Much of Shelburne's local manufacturing and commerce disappeared.

In light of Shelburne's changed farming status and its inability to foster commercial growth, it is easy to understand why its population remained small. From a figure of 1,202 in 1900, it dropped to 997 in 1920, and hovered around 1,000 until the 1940's. During that time Shelburne continued to be primarily an agricultural town with its population limited by the available farmland. The post World War II economic growth in Chittenden County, and the increased popularity of suburban or country living, placed the Town in a markedly different context. Shelburne's growth became more and more related to that of the Burlington region and less and less tied to its original agricultural activities.

Suburban life brought with it a greater variety of land uses and complications of a fast growing population and its increased demands for services. Since the mid 20th century, the Town has grown to a population of over 7100 and with that growth the infrastructure and services to accommodate the population have increased. Shelburne residents experience a high quality of life as one of the communities on the outskirts of Burlington.

III. LAND AND ITS USE

In large part, the use of land is determined by its attributes – soil quality, availability of water, and proximity to services. In earlier times, when the people of Shelburne were primarily occupied by agrarian pursuits and the development of an economic base supporting those pursuits, settlement was focused in those parts of town best for farming, milling and transport of farm and timber products. During the late 20th century, Shelburne largely moved away from a land-based economy to become a more suburban community in which residential development decisions are driven by proximity to employment, the availability of septic/sewer disposal, potable water supply, and aesthetic desirability. By and large, commercial development continues to be dependent on transport services for the purpose of either delivery of resource materials and shipping of finished products to market or offering a convenient location to attract local consumers.

What follows is a description of the land and water resource base upon which our town has been developed as well as the significant human-made improvements to the land which has and will influence Shelburne's future.

A. NATURAL ENVIRONMENT

Shelburne is located in the relatively flat lands of the Champlain Valley, on the edge of Lake Champlain. Shelburne consists of roughly 15,600 acres of land and roughly 13,200 acres of water (due, in large part, to the portion of Lake Champlain within our borders) (See Map 1). The land form was largely created by the glaciers and has relatively little relief, as compared to many Vermont towns. The Topography Map (Map 2) depicts the elevation of various points in the community. The shoreline of Lake Champlain is approximately 98.5 feet above sea level and the highest point of land in town (on the ledges just east of Shelburne Pond) is 456 feet above sea level. In spite of having little topographical relief, the town enjoys a rich endowment of natural features and a landscape with much variety.

1. Land Resources

a. Geology:

The bedrock geology of the Town of Shelburne Vermont is fascinating and diverse. If you walked from the shoreline of Lake Champlain to the eastern boundary of the town, it would be possible to encounter as many as 12 distinct bedrock formations during your journey, including shale, quartzite, limestone, and dolostone. See the Bedrock Geology Map (Map 3). Almost all of these formations (with the exception of the igneous intrusions along the shoreline of Lake Champlain) originated as sediments on the shoreline and floor of the Iapetus Ocean, the precursor to the modern day Atlantic, which existed around 500 million years ago. The tectonic forces that closed the Iapetus Ocean and uplifted the Green Mountains also metamorphosed these rocks, and even fractured the earth's crust, shoving older layers over younger layers, as is manifested by the Champlain Thrust Fault that runs north-south through the western part of Town.

The surficial geology of the Shelburne, which is dominated by silt, clay, and sand, is a reflection of the fact that its landscape was completely covered by Glacial Lake Vermont immediately following the retreat of the Laurentide ice sheet. This vast glacial lake covered the Champlain Valley to elevations 600 feet above present day sea level, and its presence led to the mantling of the previously deposited till with deep deposits of fine silts and clays. Large swaths of marine sand cover these lake bottom sediments in the

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general area between Route 7 and Spear Street, a manifestation of the shoreline of Champlain Sea (an inland arm of the Atlantic Ocean) that inundated the Champlain Valley to elevations 320 feet above present day sea level for several hundred years following the retreat of the ice sheet. Interestingly, the underlying glacial till is exposed in areas where streams have down-cut through the overlying sediments. This till is largely composed of the local shale, limestone, and quartzite that makes up the bedrock of Shelburne. Pluvial deposits derived from slowly decomposing organic matter form the parent material for wetland soils found in the vicinity of Shelburne Pond and the LaPlatte River. A map of surficial geology in Shelburne is presented as Map 4.

b. Soils

The soils in Shelburne result from major geologic forces which formed the Champlain Valley. These forces include both the formation and uplifting of bedrock and the deposition of sedimentary matter by glaciers and rivers. In the western part of town, along the lake shore, soils are characterized as loamy soils formed as glacial till deposited on bedrock in the form of ridges and knolls. A similar formation can be found just east of Shelburne Pond. With the exception of muck and peat deposits around the Pond, most of the land between the loamy glacial till deposits are characterized as silty, clayey soils deposited in old lake plains.

Soils characteristics are important in that they help determine agricultural productivity as well as suitability for on-site septic systems. The Agricultural Potential of Soils Map (Map 5), maps the soils in Shelburne according to their value for agricultural production. Since the loamy soils and the clayey soils tend to be very productive, much of the land in Shelburne is shown in the high value groups, a finding consistent with the historical success of farming in the area. "Primary agricultural soils" are defined in Act 250 as those soils which have a potential of growing food and forage crops, are sufficiently well drained to allow for sowing and harvesting with mechanized equipment, are well supplied with plant nutrients or highly responsive to the use of fertilizer and have few limitations for cultivation or limitations which may be easily overcome. They include "prime" soils (recognized as having national significance) and "statewide" soils (recognized as those having statewide importance). Within this general category, prime farmland soils are those soils that have the best combination of physical and chemical characteristics for producing food, feed, forage and fiber crops and are also available for these uses. The "statewide" soils, while having good potential for growing crops, have limitations that restrict the choice of crops. These limitations result from such factors as excess slope and erosion hazards, excess wetness or slow permeability, flooding hazards, shallow depths (less than 20 inches) to bedrock, hardpan or other layers that limit the rooting zone and available water capacity, and/or moderately low available water capacity.

The Potential of Soils for On-Site Sewage Map (Map 6) categorizes the soils by their ability to accommodate on-site septic systems. In general, the loamy soils in the western and eastern portions of the Town are much more suitable for on-site systems (providing there is adequate depth to impervious layers and slopes are not too severe) than the silty, clayey soils in the broad mid-section of the Town.

c. Forest Lands:

While most of Shelburne was at one time cleared for farming, considerable areas are going through the process of reforestation due to the discontinuance of large-scale agriculture. In some cases such as wetland and bog forests, the difficult terrain protected the forests from logging and/or clearing. Some of these forest areas are identified on the LaPlatte River Greenway Map (Map 7). Forest lands are also shown on

the Existing Land Use (also incorporating land cover) Map (Map 8). In general, forest areas add to the diversity of the biological activity and wildlife habitat in the town, provide a buffer between development, and at the same time contribute to the richness of the town's visual quality.

d. Wildlife Habitat

Wildlife habitats are places occupied or relied upon by game as well as non-game species. They include sheltered areas where deer find food in winter (commonly known as deer yards), bear habitat, migratory staging areas for waterfowl, and fisheries. Other types of wildlife habitat include forested tracts capable of supporting larger mammals and "wildlife corridors" such as streams and hedgerows that help connect habitat areas.

The benefits provided by wildlife habitats are numerous. In addition to playing an essential role in the local and regional ecology, they contribute to the economy by attracting travelers, recreation seekers, and wildlife admirers who purchase goods and services. They also add to the community's character by influencing a sense of wild and natural surroundings.

The diversity of land and water characteristics makes Shelburne an attractive habitat for many kinds of wildlife. The area just west of Shelburne Bay supports a substantial herd of white tail deer, as does the area just west of Shelburne Pond. The pond and lake are attractive to migrating birds, including ducks and geese. In addition, grebes, rails, snipe and woodcock are observed near Shelburne Pond.

Many habitat features for plants and animals occur in or near wetlands or open water, emphasizing the ecological importance of these landscape features. For example, the LaPlatte River Marsh is particularly rich. Many species of birds are observed and ospreys and an occasional bald eagle have been seen. There are ample signs of raccoon and other small animals, and beaver are active along the river. Several wildlife corridors in Shelburne run along streams and adjacent wetlands; these features permit movement of bobcat and other species that require large areas for foraging.

Finally, over a considerable portion of the last decade, a local citizens group involved in tracking wildlife in Shelburne noted increasing incidents of sightings of such previously uncommon creatures as bobcat, moose and wild turkey. For examples of these features, see the Wildlife and Associated Areas Map (Map 9). Responsibility for proposing updates to this map has been assigned to the Shelburne Natural Resources and Conservation Committee (SNRCC).

e. Non-Game and Natural Heritage Program Sites

Vermont's Non-Game and Natural Heritage Program identifies and catalogues a range of different natural resource types, including Endangered and Threatened Animals, Endangered and Threatened Plants, Uncommon and Rare Animal Species, Uncommon and Rare Plant Species, and Vermont Natural Communities. Endangered and Threatened Animals are animal species protected by the Vermont Endangered Species Law (10 V.S.A. Chap. 123) and, in some instances, the Federal Endangered Species Act (P.L. 93-205).

The term Rare and Uncommon Native Animals applies to some but not all of the animal species considered Endangered and Threatened. Animals considered rare are rare because they have very particular habitat requirements, are at the edges of their ranges, are vulnerable to disturbance or collection, or have difficulty reproducing for unknown reasons. There are also a number of species listed which are considered uncommon in the state.

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Similarly, the term Rare and Uncommon Native Plants of Vermont applies to some but not all of the plant species considered Endangered and Threatened. The listing consists of all the rare native vascular plants, and a few moss species. A native species is one that can be shown to have been present in our region for at least 100 years, and for which there is no evidence that it had an exotic origin, or was introduced. These plants are rare because they have very particular habitat requirements, are at the edges of their ranges, are vulnerable to disturbance or collection, or have difficulty reproducing for unknown reasons. Species considered uncommon are uncommon in the state.

The term "natural community" means an area which has certain physical characteristics that unify it and make it different from other areas, and has a community of plants and animals that are characteristic of that kind of habitat. Examples include: Upland Forests and Woodlands (such as the Northern Hardwood Forest Formation and the Oak-Pine-Northern Hardwood Forest Formation); Open Upland Communities; Forested Wetlands; and Open and Shrub Wetland communities (such as Peatlands, Marshes and Sedge Meadows, Wet Shores, Shrub Swamps).

It should be noted that Endangered and Threatened Species and Natural Communities also serve as environmental barometers; certain species can reveal signs of environmental contamination before such contamination might become a threat to local residents.

Data from the Vermont Non-game and Natural Heritage Program indicates that rare plants and animals may be found in several different locations. As shown on the Natural Heritage Sites and Biological Natural Areas Map (Map 10), many of Natural Heritage sites are located near water bodies or in association with unusual geologic formations. A number of Natural Heritage sites are in locations subject to increasing development pressure.

f. Biological Natural Areas:

A Biological Natural Area may be thought of as an example of natural community with exceptional natural resource qualities. One study conducted for the Vermont Department of Fish and Wildlife (Biological Natural Areas of Chittenden County; Engstrom, 1991) identified seven unique biological natural areas within Shelburne. Detailed descriptions of these areas can be found in the Engstrom Report. While not necessarily exclusive, the overview statement from this Report identifying several important natural areas in Shelburne is reproduced below:

The seven natural areas of Shelburne contained in this report display the diversity of landscape features and biological communities found within the town.

Queneska Island, with its shoreline composed of jagged slate outcrops, is representative of the Lake Champlain shoreline, especially the scenic west shore of Shelburne Point. The island features a good example of oak-hickory forest, a natural community once common in Shelburne and the Champlain lowlands, but now reduced to small remnant stands.

On the east side of Shelburne Point, Allen Hill features a couple of different forest communities found in the Town. A rich oak-hickory-northern hardwoods forest occupies a blocky talus slope on the cool north side of the hill. In contrast, the hill's drier south slope supports an oak-pine forest with an unusual concentration of chestnut oak (*Quercus prinus*).

Two of Shelburne's natural areas exemplify different ecological aspects of the town's most prominent stream--the LaPlatte River. East of the village, the LaPlatte River Ledges contain examples of both floodplain forest and associated wetlands, and dry oak-hickory-hophornbeam forest. At the river's mouth, the LaPlatte River Marsh actually is a wetland complex featuring various marsh and shrub swamp natural communities, as well as alluvial forest.

The gently rolling country found in the eastern half of town is typical Champlain Lowlands landscape. With its fertile soil composed largely of silt and clay, this part of town was cleared for agriculture many years ago and remains open today. Regrettably, no good examples of the forest which inhabited these arable lands presently exist in town. Rising out of these glacial lake-bottom sediments are low limestone ridges. Hubbard Woods, formerly described in the Shelburne Quality Environment Plan, contains an exceptional example of a limestone flora typical of these rocky carbonate ridges.

Shelburne Pond is the dominant water feature in the eastern part of town. Sitting in a limestone basin, this large pond is highly alkaline and is surrounded by a variety of large wetlands, including peatlands. The pond and wetlands, plus adjacent uplands, comprise a very significant natural area for the state as well as the town. Fortunately, Shelburne Pond is protected as a natural area by the University of Vermont.

The last of the Shelburne sites--Southeast Hill Swamp--is the natural area least representative of the town's landscape. Tucked away in the limy hills located in the Town's southeastern corner, this site features an excellent example of a red maple-black ash swamp.

These seven areas are depicted on the Natural Heritage Sites and Biological Natural Areas Map (Map 10).

g. Conservation Lands

Over the past couple of decades, a substantial amount of land has been acquired by the Town for public use or conservation, was limited to conservation uses as a result of development review by the Planning Commission (and more recently, the Development Review Board), or has become the object of conservation easements held by third party conservation organizations for the public benefit. These lands, which represent roughly 30 percent of the Town's total land area, are depicted on the Public and Conserved Lands Map (Map 11).

The Public and Conserved Lands map also reflects efforts of the Town's Natural Resources and Conservation Committee (SNRCC). The SNRCC is responsible for developing Shelburne's Open Space Plan, which is a guide to the use of these lands and to the prioritization of future conservation projects. Notable among the conserved properties are the lands surrounding Shelburne Pond and the mouth of the LaPlatte River, Shelburne Bay Park and the LaPlatte Nature Park. Notable also are other properties located along the LaPlatte River, including the Zen Center, and agricultural parcels (e.g., Leduc, Maille) located in outlying areas. The commitment of the town's citizenry to land conservation is evidenced by the consistent and overwhelming votes of approval over the past 15 years to raise taxes for addition to the town's Natural Resources/Conservation Land Preservation Fund.

Land and Its Use

2. Water Resources

a. Surface Water:

Clearly, among the most prominent physical features in town are its major surface water bodies (Lake Champlain, Shelburne Pond, the LaPlatte River, and, to a lesser degree, Monroe Brook and McCabe's Brook). These are all shown on the Surface Waters and Watercourses Map (Map 12). The Town also contains approximately eighteen miles of Lake Champlain shoreline, much of it undeveloped. As will be discussed elsewhere, the views of and over these shorelines add considerably to the Town's visual richness.

Shelburne Pond is contained entirely within the town and drains north to the Winooski River. The Pond covers roughly 500 acres and is noted both for its views, unique and fragile plant communities and wildlife habitat, and for its warm water fishery. In addition, some important marshes line its banks. The Pond's recreational purposes include boating, birdwatching, and hiking. Educationally, the pond is used by the area schools and colleges.

The LaPlatte River extends 9.3 miles from the Charlotte town line to its discharge point at Shelburne Bay. This river has a total drainage area of 54 square miles and includes a number of unique areas along its banks.

Bisecting the town, the LaPlatte River provides an important corridor for wildlife movement, offers opportunities for a variety of recreation, is rich in ecological diversity, and is a visual focal point. The *LaPlatte River Greenway Study and Proposed Plan*, (Mattei, 1990) established the boundaries of the greenway using a method which considered ecological, recreational and land use aspects of the area surrounding the LaPlatte River. The greenway study and plan proposes a boundary for the greenway which should be left as undisturbed as possible to maintain the integrity of the river corridor. The LaPlatte Greenway Map (Map 7) shows this area and identifies the following features existing at the time the study was created: wetlands; lowland meadows; upland fields; transitional woods, mature forests; and floodplain forests. In addition, Map 7 depicts existing and proposed trails, access points, rare plant areas, a cave and several parks. Much of the land involved is owned by the Town or The Nature Conservancy and managed as a conservation area.

Monroe Brook drains an area of roughly six square miles and has a length of 6.8 miles, all within the town. It discharges into Shelburne Bay slightly north of Bay Road. McCabes Brook discharges into the LaPlatte River just before the LaPlatte enters Shelburne Bay. McCabes Brook is just over 5 miles long and drains an area of approximately five square miles.

b. Ground Water:

Ground water is of primary interest as a source of potable water. Shelburne has some excellent aquifers which have significant potential for wells. In particular, the area below the LaPlatte River, east of U.S. Route 7, is composed of gravel deposits and has exhibited excellent well yields (10 to 100 gallons per minute). This aquifer probably recharges directly from the river. Also, there are several locations where undifferentiated limestone aquifers have yielded wells of 4 to 150 gallons per minute.

However, other than the riverine gravel deposits and the undifferentiated limestone, much of the town contains subsurface geology which does not contain adequate ground water for wells. The area south of the LaPlatte but west of Route 7 contains rather impermeable silts and clays which prevent water from reaching possible bedrock aquifers below, and thus has limited well potential. In addition, the shales found along the Lake shore are rather impermeable and do not carry much potential for wells. In all cases, care must be taken to protect aquifers from contamination, either from subsurface sewage treatment systems or from contaminated surface water seeping into the aquifer. This is particularly important in the context of new development proposals where the addition of impervious surfaces has the potential of adversely impacting important aquifers and other bodies of water. The Town has adopted and is currently implementing stormwater regulations which, in part, are for the purpose of aquifer protection. Additional, detailed information regarding the Town's stormwater management efforts is presented in the Public Facilities, Utilities, and Services section of this Plan.

c. Wetlands:

Wetlands are land areas that are saturated with water at least part of the year. Although precise definitions vary, wetlands are normally identifiable by vegetation, soil type, and/or frequency of ponding. Wetlands include marshes, swamps, and bogs. In addition to providing important wildlife habitat, values (or functions) of wetlands include storing stormwater, purifying surface and groundwater supplies, recharging aquifers, controlling erosion, providing areas for recreation, and serving as education and research areas. It is important to note that loss of wetland storage capacity will not only adversely affect stream behavior but will also increase floods and reduce stream flow during critical low flow periods.

Wetlands are also important for maintenance of water quality and wildlife. They support plants that can help purify water by taking up nutrients and incorporating them into plant materials while releasing oxygen. Migratory birds use wetlands in the area as stops along the Atlantic Flyway. Wetlands also play critical roles in the reproductive cycle of many threatened species. Shelburne contains a variety of inland wetlands, which are depicted *generally* on the Wetlands and Hydric Soils Map (Map 13) along with hydric soils, which have some of the same characteristics as wetlands.

Activities in wetlands are regulated by both the state and federal government. As noted by the Vermont Water Quality Division,

The Vermont Wetland Rules were originally adopted in 1990 by the Vermont Water Resources Board under 10 V.S.A. § 905(7) . Act 115 replaced the Vermont Water Resources Board with the Water Resources Panel in 2004. In 2010, the Water Resources Panel passed new Vermont Wetland Rules pursuant to 10 V.S.A. § 6025(d)(5). This statute limits the applicability of these rules to those wetlands which are so significant that they merit protection. Wetlands that are not significant should be assumed to have public value, and therefore may merit protection under other statutory or regulatory authority. The Vermont Wetland Rules identify and protect 10 functions and values of "significant" wetlands and establish a 3-tier wetland classification system to identify such wetlands. The first two classes of wetlands (Class I and Class II) are considered significant and protected under the wetland rules, along with their buffer zones (generally 100-foot for Class I and 50-foot for Class II). Vermont Significant Wetlands Inventory (VSWI) maps show an approximate location of many significant wetlands. In addition, wetlands contiguous to mapped wetlands, wetlands similar to mapped wetlands, and wetlands described in Section 4.6 of the Vermont Wetland Rules are presumed to be significant wetlands. Act 31 allows for the Secretary to make formal determinations regarding the classification of wetlands as Class II or Class III. Designation of wetlands as Class I requires rulemaking by the Water Resources Panel.

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Activity in a Class I or Class II wetland or its associated buffer zone is prohibited unless it is an allowed use or authorized by a permit, conditional use determination or order issued by the Secretary. The Secretary may impose any conditions in such a permit that are deemed necessary to achieve the purposes of these rules. The Secretary may issue a permit authorizing an activity occurring within a Class I wetland only to meet a compelling public need to protect public health or safety.

Class III wetlands are those wetlands that do not provide significant function and value according to the Vermont Wetland Rules. These wetlands are not protected by the Vermont Wetland Rules and a Vermont Wetland Permit is not required for projects in Class III wetlands. Class III wetlands may, however, be protected by other federal, state or local laws and regulations, including those administered by the U.S. Army Corps of Engineers and the Vermont Environmental Board (Act 250). Projects that require a federal permit will also require a Section 401 Water Quality Certification.

It should be noted that additional jurisdiction over wetlands in Shelburne may be established as a result of Act 110 of 2010. This act encourages and promotes (among other things) buffers adjacent to lakes, ponds, reservoirs, rivers, and streams, encourages and promotes protected river corridors adjacent to rivers and streams of the state, and authorizes municipal shoreland and river corridor protection.

The primary federal program providing protection for Wetlands is Section 404 of the Clean Water Act. According to the Agency of Natural Resources web site, this act (33 USC § 1344), ,

establishes the authority of the Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (Corps) to regulate the discharge of dredged and fill material, and mechanized land clearing in waters of the United States, including wetlands. The basic premise of the Section 404 program is that no discharge of dredged or fill material can be permitted if there is a practicable alternative that is less damaging to the aquatic environment or if the discharge would result in significant degradation of our nation's waters. Different types of Section 404 permits are required depending on the size and nature of the project.

The Federal Rivers and Harbor Act also bears on wetlands, although not exclusively.

Section 10 of the Rivers and Harbors Act of 1899 also authorizes the Corps to regulate work in, over, or under navigable waters of the United States. A Corps permit is required for all work (structures, etc.) below or beyond the ordinary high water line of any navigable water.

Because many areas of Shelburne are wetlands under state or federal definitions, they may be subject to the requirements of the Vermont Wetland Rules and/or Clean Water Act. Since 1986, state legislation has allowed Vermont municipalities to protect wetlands at the local level through regulations such as zoning bylaws. At the present time, Shelburne has not adopted any such local zoning controls over wetlands.

B. BUILT ENVIRONMENT

1. Land Use Distribution

In the years since Shelburne was first chartered, the Town has experienced a range of development activities and patterns. Overall, however, Shelburne has evolved from a rural community with small, locally-oriented industries to a predominantly residential community with several sizeable commercial and industrial establishments.

In addition to depicting the distribution of vegetative cover, the Existing Land Use Map (Map 8) depicts the overall pattern of land use in Shelburne. According to separate land use data compiled in 2003 by the Chittenden County Regional Planning Commission, more than half of Shelburne consists of areas dedicated to natural resource related activities or lands where there is little or no human activity, while another third of the Town (34 percent) is occupied by residential uses. Another 6 percent supports recreation-related uses and 4 percent by transportation uses, including roadways.

As noted in previous Town plans, other observations can be made regarding land use in the Town.

First, several significant land holdings (ie. Shelburne Farms, the Meach Cove Trust Property (former Bostwick farm), Pheasant Hill Trust, among others) make up a significant area west of U.S. Rt. 7.

Second, there is a significant amount of land classified as agricultural located east of Spear Street, west of the Vermont Railway corridor, and, to a lesser extent, south of the village (e.g., the former Clark farm straddling U.S. Rt. 7 adjacent to the Charlotte Town line).

Third, some agricultural or forest areas are interspersed with low density housing. Recent residential development in these areas has been clustered in an effort to retain as much contiguous agricultural land as possible.

Fourth, rural residential uses (on lots of more than 15 acres) tend to be concentrated along the east side of Spear Street, along Dorset Street and Mt. Philo Road, and along the Charlotte Town line between Spear and Dorset Streets. Residential uses on lots of less than 15 acres tend to be located west of Spear Street, with concentrations around the Village area, around Route 7 south of the South Burlington line, and on Shelburne Point.

Fifth, non-residential, non-farm uses (ie. commercial, government, industry, religious establishments, etc.) tend to be either in the Village or along U.S. Rt. 7. The large area designated recreation straddling Spear Street is the Kwiniaska Golf Course.

Lastly, historically, Shelburne's lake shore land has been kept in relatively large holdings. Exceptions include the residential area on Shelburne Point, residential development between Route 7 and Shelburne Bay, and residential development just south of the Town Beach.

Since the update of the Plan in 2007, at least two other observations about land use issues have been made with some regularity. The first is that, with numerous business vacancies as well as a small number of derelict properties, the Shelburne Road corridor north of Shelburne village is underperforming as a real estate resource. Revitalization of the corridor may be one of the most important land use issues to be addressed by the Town in coming years. Fortunately, the first steps toward that revitalization are now being taken. Recent accomplishments notwithstanding, however, if it is to prosper over the long term,

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the Town must take concrete steps to improve conditions in the corridor and insure that businesses are healthy and positioned to remain healthy during the next economic downturn. In addressing this problem, the Town will need to capitalize on strengths such as the levels of traffic found in the corridor, overcome or at least offset deficiencies such as the lack of a Shelburne brand and coordinated marketing, and continue to improve zoning, all while enhancing the appearance of the corridor.

The second major observation relates to the increasing development of Shelburne's countryside. Regardless of whether the current trend is termed exurban, sprawling, or merely inefficient, the result is the same: the rural landscape in Shelburne is changing in ways that undermine the established land use goal of planning development "to maintain the historic settlement pattern of compact village and urban centers separated by rural countryside."

Illustrating this point, it has been noted that of the 228 lots approved for residential construction or use in Shelburne over a recent five year period, a total of 92, or fully 40 percent, fall within the Town's rural area. Residences located in rural areas tend to be more vehicle-dependent than residences in more densely settled areas. The lack of transportation connectivity between new and existing neighborhoods may reinforce vehicle dependency and low density development patterns,

All together, the patterns of land use in Shelburne reflect the substantial growth that the town has experienced in recent decades. The Village is the most intensely settled area, and has been for quite some time. It continues to be the "center" of the town, although some question whether it deserves continuing primacy. Commercial and industrial growth has been concentrated along Rt. 7, north of the Village, although in recent years the economic health of the corridor has not been good. Newer residential development in the Town has taken the form of mostly clustered suburban subdivisions where sewer capacity was available, and large lot rural strip development along existing roads where sewer capacity was not available.

As mentioned in the previous Plan, in the late 1990's several subdivisions were built on lands in an area around Webster Road, while after 2000 major development proposals have been approved along Webster Road as well as along Route 7 and at the corner of Irish Hill Road and Thompson Road . This infill pattern is one the town has encouraged as an alternative to development which is in the more rural areas of town. However, efforts to encourage this pattern are not always successful. Fortunately, in many cases the interiors of the large blocks between existing roads has remained as farmland or undeveloped land.

2. Historic and Archeological Resources

There is much evidence demonstrating that the area now known as the Town of Shelburne was inhabited by Native Americans long before the town was chartered in 1763 and the first European settlers began to arrive. As shown in the Archeologically Sensitive Areas Map (Map 14), archeologically sensitive sites tend to be located along the edges of rivers, lakes and ponds. In Shelburne, areas around the lakeshore, Shelburne Pond and along the LaPlatte River, as well as McCabes and Monroe Brooks, would be considered potential sites of archeological interest. One study of archeological resources on a portion of Shelburne Point found evidence of pre-historic occupation of the area as much as 7000 years before the present day.

In addition to the archeological sites, three hundred plus years of European-American settlement have left a distinct record on Shelburne's landscape. This is manifest not only in the large areas that remain clear for farming, but also in the substantial number of historic structures. The Historic Resources Map (Map 15) shows the location of those historic structures which have been identified and surveyed to date. Most were

built after the middle of the nineteenth century when Shelburne was approaching its zenith as an agrarian community.

Mid-nineteenth century farm structures can be found at regular intervals along major roads in Town (ie. Spear Street, Dorset Street, Route 116, etc). Also there are important clusters of historic farm structures on the major land holdings west of Route 7, including Shelburne Farms and the Meach Cove Trust property.

Clusters of historic non-agricultural structures are found on Shelburne Point at the site of Shelburne Shipyard and in the village areas. The Shipyard, now a marina, was the scene of a very active shipbuilding operation which continued well into the twentieth century. Many of the structures still stand. The steam vessel Ticonderoga, on display at the Shelburne Museum, was built at the Shelburne Shipyard.

The original village settlement focused on water power and was located in the Shelburne Falls area. Only some foundations are left of the mills, but much of the residential area remains. The other village area was oriented to the major land transportation route (now Route 7). It grew to contain inns, shops and government buildings, and is now the heart of Shelburne Village. The remaining historic buildings in this area have been included in the Shelburne Village Historic District which is on the National Register of Historic Places.

Thus, the remnants of Shelburne's history constitute an important portion of its current character. The nineteenth century village, the open fields and meadows and the historic farm structures all contribute to the current perception of Shelburne as a desirable place to live and work.

C. CULTURAL RESOURCES

Shelburne is fortunate to have several important cultural resources located within its borders, which complement local historic, human, and natural resources. These cultural resources not only bring high-quality educational programs, performing arts, art and craft exhibitions and live theater to the town; they provide a sense of Shelburne's history both as an individual town and in the context of the history of New England and United States.

1. Shelburne Farms

Located on Harbor Road west of U.S. Route 7, Shelburne Farms is a 501(c) (3) non-profit education center, 1,400-acre working farm, and National Historic Landmark dedicated to cultivating a conservation ethic for a sustainable.

Shelburne Farms was founded as a model agricultural estate in the 1880s. Today it is owned and operated by a non-profit organization, which was established in 1972. Shelburne Farms is internationally recognized as a model for community-based agriculture and sustainability education. More than 140,000 people come to Shelburne Farms each year to learn in and enjoy a place of natural and architectural beauty; more than 20,000 students participate in its hands-on education programs; and hundreds of educators utilize the Farms' award winning Project Seasons curriculum and professional development workshops to enrich their classroom curriculum and science instruction skills.

Shelburne Farms dairy herd of Brown Swiss cows provide milk for the production of a farmhouse cheddar cheese that is made on the farm. A seven-acre market garden produces organic vegetables for an on-site restaurant at The Inn at Shelburne Farms and local sales, and the woodlands produce certified lumber and

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maple syrup. In addition, Shelburne Farms has cooperative agreements with three independent partners – a bakery, vineyard and furniture shop. These land-based enterprises enhance the Farms’ programs and help sustain its working landscape. Shelburne Farms is a founding partner of VT-FEED (Food Education Every Day) and plays a leadership role in nutrition, food, agriculture, and sustainability education locally and around the world.

Year round, Shelburne Farms welcomes the public to enjoy more than eight miles of walking trails and a Welcome Center and Farm Store that focuses on locally-produced food and gifts. From May to October, it offers guided tours of the historic property; tractor-drawn wagon rides to the Farm Barn where visitors can enjoy the Children’s Farmyard, McClure Education Center, and cheese making-operation; as well as The Inn at Shelburne Farms, which offers a spectacular lake-side setting, fine restaurant showcasing local produce, and hospitality in a carefully conserved turn-of-the-century home..

Shelburne Farms collaborates with community partners to host numerous cultural and educational events each year, including summer community concerts and Winter Fest - both sponsored by the Town Recreation Department; Vermont Symphony Orchestra’s annual July 4th concert; the Shelburne Farms Harvest Festival; and an annual art exhibition. Shelburne residents have free admission to the Farm’s walking trails and Children’s Farmyard.

2. Shelburne Museum

The Shelburne Museum is located on U.S. Rt. 7 in Shelburne Village. A nonprofit, independent educational institution, Shelburne Museum consists of 39 exhibit structures, of which 25 are historic and include several period houses. These structures house a collection of more than 150,000 pieces of art and Americana.

The Museum was established in 1947 by Electra Havemeyer Webb to house and share her collections and is open to the public from mid-May to the end of October each year. The Museum’s annual attendance fluctuates between 100,000 and 130,000. School tour programs, which are offered throughout the season, serve over 10,000 K-12 students annually. Daily craft activities and games for children are offered in July and August. In addition to sponsoring their own programs, which include annual events such as Lilac Sunday as well as new and changing exhibitions each year, Shelburne Museum hosts special events such as concerts, private receptions and others.

3. Shelburne Craft School/Shelburne Art Center

The Shelburne Art Center, formerly known as the Shelburne Craft School, has been a focal point in the cultural life of the community for almost 60 years. Year-round classes and programs for adults, teens, and children are held in charming, historic buildings at 64 Harbor Road, where students learn wood-working, ceramics, fiber arts, stained glass, and other crafts as well as fine arts such as painting and drawing.

Shelburne Art Center is a site for many school art programs like Shelburne Community School, Waldorf Middle School and starting fall 2011 Burlington College, SAC host weekly drop ins for children and families. SAC offers instruction in wood, metal, clay, visual arts and more starting at the beginner’s level, all the way to advanced students. Shelburne Art Center is a nonprofit arts organization that serves residents of Shelburne and surrounding communities.

D. VISUAL RESOURCES AND LIGHTING

The visual qualities of a community form a key component in its sense of identity and its heritage. This is particularly true of Shelburne. Set within a broad valley on the edge of Lake Champlain, with views to the west of the Adirondack Mountains and to the east of the Green Mountains, the visual qualities of its rolling farms and woodlands create an important legacy of the Town's past. These visual qualities are certainly resources to be protected as reflections of many strongly held community values such as the desire for an open, rural environment, respect for natural and historic resources, and the enjoyment of the outdoors.

1. Significant Views

An initial inventory of important views in Shelburne was undertaken in the summer of 1990. It identified 85 "significant views" from public roads or points on Lake Champlain. While there are many views that could be classified as a "visual resource", this study focused on the most widely recognized ones-landscape views from public roads and significant vantage points. These viewpoints, and their associated foreground, middleground and focal points, are identified on the Significant Views Map (Map 16).

Of the 85 significant views, fifteen are from points on Lake Champlain looking onto the Town, and the remaining 70 are from points along public roads. As might be expected, many of the identified significant views are from higher elevations overlooking the lake and/or broad meadows or fields. Some are general panoramas with very wide viewing angles and others are directed towards specific focal points, either natural or man-made.

To understand the scenery's spatial composition (that is the actual land area included in a particular scene), each view was broken into three distinct spatial components; foreground, middleground, and background. In addition, focal points within each view were identified. These terms were defined as follows:

FOREGROUND is generally composed of open land adjacent to the road or other vantage point and framed by woodlands, hedgerows, or topographic relief. This area is usually the most critical view component because it is, in effect, the community's "window" to the larger view and is thus usually highly vulnerable to degradation by development. Although usually comprising the largest area of the viewing field, it is always quite small and easily identified in actual ground area compared to the middleground and background.

MIDDLEGROUND is usually a more complex composition of receding woodlands, fields, hillsides and focal points such as farm clusters or villages. Lake Champlain is often a component of the middleground as well. Due to its much larger area, high percentage of wooded lands, distance from the viewer and diverse character, the middleground tends to be much less vulnerable to degradation from development. Exceptions would include development in open fields that are important as visual focal points or development that would break the horizon line.

BACKGROUND is composed of layers of distant hillsides and mountains that rise up behind the middleground and enclose the view. While these areas are usually protected from development by virtue of their elevation and steep terrain, they are potentially subject to degradation by "skylined" development that breaks the horizon line. In Shelburne, due to its gently rolling terrain, the background to almost all views consists of lands beyond the town boundary. They include the hillsides of neighboring towns and

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the ridgeline of the Green Mountains to the east and the striking Adirondack Range across the lake in New York to the west.

FOCAL POINTS are elements in a view that tend to draw or grab the eye because of their strong contrast and/or unique form. They can include prominent cultural features such as farmstead clusters or church steeples or distinct natural features such as mountain peaks, hilltops, great trees, or rock outcrops.

The inventory of photographed views was reviewed by the members of the Natural Resources/Conservation Commission and other citizens. The views were prioritized and the specific foreground of each view was mapped using the field photographs, 1:5000 ortho-photo base maps and 1:24000 USGS topographic maps. Vantage points, direction of view, general middleground areas, and focal points were also mapped. It should be noted that the Significant Views Map is not to be regarded as a complete inventory of scenic or aesthetic resources. While the map shows some of the areas considered visually sensitive or valuable, additional views considered sensitive or significant may have been omitted.

More recently, under the auspices of Shelburne's Historic Preservation and Design Review Commission, the Town engaged a consultant to create maps depicting significant "built environment" landscapes and views in Shelburne. These maps, which were completed in mid 2012 and which highlight visually important 'built' resources such as buildings and streetscapes, will complement the natural resource-focused Significant Views map described above. These maps have been adapted for inclusion in the map section of this Plan.

2. Outdoor Lighting

Proper outdoor lighting enhances the safety of citizens and increases the security of property. Outdoor lighting is used to illuminate roadways, parking lots, yards, sidewalks, public meeting areas, work sites, and home and building exteriors. Good lighting increases the visibility of hazards, improves the safety of citizens, provides a sense of security in the community, and enhances the Town's night time character.

Bright, indiscriminate outdoor lighting with its attendant glare on roadways, light trespass on neighboring properties and "sky glow" has increased in Shelburne over the past 35 years as a result of the use of new outdoor lighting technology and increased commercial development, particularly along Shelburne Rd. (Rt. 7). Many years ago Shelburne recognized these problems by including performance standards in its zoning bylaws which regulated outdoor lighting.

As noted in previous Plans, in spite of this, a majority of outdoor lights are unnecessarily bright and a majority of outdoor lights are not properly shielded, causing unnecessary expense and unsafe light trespass and glare. In 2009, Shelburne's zoning regulations were amended to include more comprehensive regulations relating to lighting. The number of light fixtures is expected to decrease in the future, as old fixtures are replaced with modern lighting devices, including LEDs (light emitting diodes).

LED technology has been adopted by the Town as part of a significant updating of the local street lighting system. As part of the changeover from conventional fixtures to LED lighting, the number of individual poles with lights has been reduced. The Town's Selectboard has had extensive policy discussions regarding street lighting in the community. The Selectboard feels historic lighting patterns in Shelburne (i.e., where the rural area does not have as much lighting as the suburban area and where evolving safety concerns are considered) should be followed when determining future lighting.

According to previous plans, relatively few highways or streets need to be lit with expensive streetlights (intersections and walkway crossings are the important places to have good lighting); it is far better to have bright, clear painted roadway lines and good, clear reflectorized signs. Roadside business and residential lighting also needs to be shielded (and low-intensity lights employed) so as to promote the safety of motorists and pedestrians from potentially fatal glare. And most parking-lot lights can and should be turned off "after hours".

Shelburne recognizes the need for appropriate outdoor lighting but encourages that it be used only where and when necessary; that the lowest level of illumination be used that will meet the lighting need; that all outdoor lighting be adequately shielded to prevent glare and directed downward to contain the light within the area where it is required; and that the most energy efficient lighting source be used which will meet the outdoor lighting requirement. The Town also recognizes the need for lighting needed to make parking lots and similar areas functional and safe.

Some benefits from appropriate well-designed lighting are: minimizes energy use; reduces operating and maintenance costs; increases the safety of citizens by illuminating potential hazards; improves the security of property; and it can enhance property values.

Poor lighting gives rise to the following issues:

Glare - Poorly selected and installed lighting causes a glare that can severely hamper the vision of drivers, pedestrians, cyclists, and boaters thereby reducing the overall safety of citizens. Glare occurs when the bulb is viewed directly, making our eyes less sensitive to the lower illumination levels around the source.

Light Trespass - Poor lighting can shine onto neighboring properties and into windows. This reduces privacy, it can hinder sleep and it creates an unattractive neighborhood, possibly affecting property values.

Sky Glow - Up to 30 percent of the light from unshielded luminaries is directed upwards creating adverse effects over our cities and towns. It affects the behavior of nocturnal animals and birds. Sky glow symbolizes wasted energy and it washes out our view of the night sky, resulting in the loss to the viewer of such natural wonders as the stars and the Milky Way.

Energy Waste - Poor lighting wastes energy, thus unnecessarily inflating operating costs and environmental pollution from extra transmission lines and power plants. American studies have identified over a billion dollars worth of wasted energy each year because of the light that shines into the night sky. On the local level, a smaller community, with a lower tax base, can have significant savings if efficient lighting is properly installed.

Security concerns- Poor lighting also gives rise to concerns about personal security and the security of property. Shelburne's zoning bylaw makes special allowances for lighting used to provide security.

Additional information regarding lighting is available for review in the Planning office.

E. DEVELOPMENT CONSTRAINTS

The location, design, and intensity of development is influenced by the environmental factors known as development constraints. The degree to which development constraints affect development depends on their extent and severity. The development of areas with significant development constraints is possible. However, there may be significant risks, liabilities, and/or impacts associated with these activities. In other words, while development constraints can (by proper design) sometimes be overcome, they can never be ignored.

Examples of development constraints include steep slopes and areas of special flood hazard. Information about the location of these constraints in Shelburne is presented below.

1. Flood Hazard Areas

During times of heavy rain and/or rapid snow melt, the rivers and brooks which drain the land in Shelburne may overflow their banks, causing substantial flooding. Similarly, Shelburne Pond regularly overflows its banks into the lower areas surrounding it. These Flood Hazard Areas were originally studied by the Federal Insurance Administration of the U.S. Department of Housing and Urban Development. The Administration mapped flood hazard areas in the form of Flood Insurance Rate Maps. Updated versions of these maps were recently released by the Federal Emergency Management Agency (FEMA). The Town's zoning regulations have been amended in the last year to comply with FEMA requirements and will incorporate the new maps when they are finalized. Geographically, the largest flood hazard areas in Shelburne are around Shelburne Pond and along the LaPlatte River. Much of these areas are incorporated into natural areas which preclude development, which is very likely to reduce the potential for flood damage.

In addition to the areas along the pond and the water courses, there are flood hazard areas along the lake shore. Historically, Lake Champlain's water level has fluctuated between a low of approximately 93.5 feet above sea level and a high of 102 feet above mean sea level. However, in 2011, a new record high exceeding 103 feet was set. The Flood Insurance Rate Maps delineate areas subject to flooding due to high lake water level. They do not, however, depict every location where lakeshore flooding may occur (and indeed has occurred). Finally, it is important to note that flood hazards along the lake can be exacerbated by wave action and climatic conditions.

Officially designated Flood Hazard areas are delineated on the Flood Hazard Area Map (Map 17), which is based on the updated Flood Insurance Rate Maps. Again, other flood hazard areas are known to exist but are not mapped. Typically, such areas are identified by engineering consultants in consultation with staff of the Vermont Agency of Natural Resources. On the other hand, in some instances there are areas identified as flood prone which may not be; a separate "letter of map amendment" process exists by which such areas can be removed from the map.

2. Slopes

Developments located on very steep slopes may be associated with erosion, soil slumping or collapse, and, occasionally, groundwater contamination.

As shown on the Slopes Map (Map 18), slopes of > 15 percent and > 35 percent can be found along the LaPlatte River Corridor, west and south of Shelburne Heights, west of the Rice Woods property, along

portions of the eastern shore of Shelburne Pond and the western rim of Shelburne Bay, in portions of Shelburne Farms and at Pheasant Hill, southwest of the Kelady Drive neighborhood, and south of Bostwick Road between the railroad tracks and US 7. Shelburne's zoning regulations employ slopes in calculating the allowable development potential of lands—in other words, a parcel's overall allowable development density—within Planned Unit Developments (PUDs). The regulations were recently amended to clarify the manner in which the area of lands with slopes of greater than 15 percent are identified.

F. TRENDS AND ISSUES

As noted in several passages above, the trend in land use in Shelburne over the past 40-50 years has been away from a rural agriculture character and toward suburbanization. In the 1970s, the town witnessed an relatively rapid rate of growth in housing and population. Following the first 160 years of a stable population of about 1,000, the Town began to grow in the 1960's to the point where we now number about 7,000. This growth and "suburbanization" has drawn the attention and concern of some Shelburne residents.

As part of the revision of the Town Plan, the "Shelburne 2010 Community Survey" ("the Survey") was conducted by the Planning Commission in collaboration with the University of Vermont and a panel of local volunteer experts. Response to the Survey was regarded as both sufficiently high and representative of the Shelburne community to render it helpful to the Planning Commission. The Survey contained questions related to the future of land use in the Town.

Echoing the approach used in 2003, the first question posed in the survey asked residents to identify the three most important issues facing Shelburne in the next five years. Options included thirteen choices ranging from "Attracting Employment" to "Protecting open space and natural resources." The survey form also allowed respondents to indicate priorities not included in the list of options. As recognized by the UVM students who analyzed the survey, respondents identified "Protecting open space and natural resources", "Controlling the Town's budget", and "Developing more affordable housing" as top local concerns. However, the precise ranking of these issues varies when different assessment methods are used. Additional results of the survey are presented in the box below.

As mentioned above, there has been consistently strong support on Town Meeting Day over the past several years on ballot articles to raise taxes to be added to the Town's Natural Resources/Conservation Land Preservation Fund. In the past decade, due to the citizenry's increasing interest in understanding Shelburne's past and where the Town is going, residents and others also had the benefit of two other valuable programs: "PLACE" and "STAT."

PLACE, led by the University of Vermont's Professor Walter Poleman, was brought to Shelburne through the effort of the Shelburne Natural Resources and Conservation Commission and Shelburne Farms. Through presentations and site visits, dozens of Shelburne residents learned about Shelburne's geology, natural history and human (cultural) history. STAT (Shelburne Today and Tomorrow) was a weekend event led by Delia Clark which explored those aspects of Shelburne which its residents have come to value and engage in discussion about how to maintain what we have or resurrect that which has been lost or diminished.

Survey Result Summary

For the second time in seven years, the Shelburne Planning Commission carried a town- wide opinion survey in support of its updating of the Town Plan. The survey was conducted with assistance from local volunteer experts. Results were analyzed cooperation with a class studying statistical methods at the University of Vermont. The Planning Commission developed a preliminary set of questions using the previous survey as a starting point. Next, a volunteer committee revised the questions and developed the survey form. Copies of the survey were distributed as an insert to the Shelburne News, as well as via the Internet. A total of six hundred and ten responses were received in the weeks following the distribution. Most of the surveys were returned via US mail; the balance was completed online or returned via drop boxes set up at several public spots in Shelburne.

Out of 610 surveys tabulated, 545 (93 percent) were completed by residents of the Town. Another 28 (4.8 percent) were completed by persons who work in the Town but do not reside in Shelburne. In terms of demographic variables, more women than men completed the survey. As with the 2003 survey, the vast majority of responses were received from middle-aged residents. Survey respondents also tended to earn somewhat-higher-than-average incomes

Key findings made during analysis of the survey results include the following:

According to survey respondents, some of the **more valued features of the community include the attractiveness/ character/ beauty of the Town...**”, **it’s rural nature and open space, as well as the high quality of town services** like schools, highways, library, and recreation facilities. Features of the community **respondents did not enjoy and did not wish to see continued include traffic congestion, speeding, and sprawl.**

More than two thirds indicated that the Town should do all it reasonably can to support economic development consistent with Town Plan priorities. That said, slightly less than **two-thirds indicated that they do not support allowing more service stations in the Town.**

Responses to the survey strongly suggest that the amount of **parking available in the village center is not perceived to be a problem** by the majority of local residents. Some 57 percent of respondents indicate that there are both enough spaces and adequate signage for those spaces.

Nearly 70 percent of **survey respondents believe that design regulations similar to those existing in Shelburne village should be established in the area north of Shelburne village.** Another 13 percent of survey respondents are unsure about implementing design regulations, and neither for or against the idea. Roughly one in eight oppose the idea. When asked if design review regulations could help set Shelburne apart from neighboring communities, almost two thirds of responded positively.

More than half of all survey respondents believe Shelburne’s current goal for developing affordable housing—set at ten percent of the total or approximately 5.3 units per year—is “about right.” Another 28 percent of respondents believe the 10 percent goal is too low. Results of a similar question posed regarding the Town’s goal for creating moderately priced housing indicates even stronger support in the community for increasing the supply of what is sometimes called Workforce housing. Some 89 percent feel the goal is about right or too low.

When asked for their opinions regarding the importance of affordable housing and the best approaches for creating more affordable housing, respondents indicated a clear preference (56 percent) for mechanisms such as fees on developers.

According to the survey results, **39 percent of respondents believe increasing connections between neighborhoods should be required of developers. Another 26 percent feel that increasing the connections between neighborhoods should occur only within the village center and surrounding designated growth area.** The rest question the value of connections.

Results of the survey indicate that the **overwhelming majority of residents—92 percent—support burial of utility lines.** The burden for burial of utility lines should fall on developers, most residents believe. More than 55 percent of survey respondents indicated that the Town should promote more attractive streetscapes through public works specifications and that developers should bear the burden of any additional costs resulting from those activities.

People like Shelburne. When **given an opportunity to rate Shelburne as a place to live and/or work, respondents give the Town an average rating of 8.23, on a scale from one to ten.** Shelburne Promoters frequently mention that “Shelburne is a great place to live.” They also appreciate its rural character and believe the schools are good. In contrast, Shelburne Detractors are concerned about high taxes and Town governance.

More recently, the Town has participated in programs such as the EPA's Community Building Blocks program, which brought national authority Christopher Duerksen to the Town to offer advice on planning issues relating to sustainability. In the Fall of 2011, the Town played host to a team of experts convened by the American Institute of Architects as part of AIA's Sustainable Design Action Team (SDAT) program. And, in the spring of 2012, the Town engaged architect Bill Dennis to complete Pilot project intended to build upon some of the recommendations contained in the SDAT final report. These "grassroots" initiatives clearly reflect a concern that Shelburne should neither allow itself to grow irresponsibly or at the expense of our natural, open, scenic and agricultural environment, nor endure economic stagnation.

G. FUTURE/IMPLICATIONS

The desire of the Shelburne community to avoid degradation of the natural and cultural environment of the Town and to conserve open, scenic and agricultural land will need to be reconciled with the need to continue to build houses to meet the demand of a growing Chittenden County and to support the local economy. As at least some degree of conflict may be inevitable, the Town must continue to refine its land development regulations so that they encourage development in appropriate locations, including locations designated as "growth centers." Growth centers, which have features, facilities, and services that can more readily accommodate growth without adverse impact, are an important planning tool. The growth center recognized in this Plan corresponds directly with the sewer service area (SSA) designated under the Town's Sewer Capacity Allocation Ordinance. To avoid unnecessary development-related conflicts, any anticipated changes in the boundaries of the growth center and in the boundary of the SSA must be carefully coordinated; ideally, decisions to modify the boundary of the growth center should consider anticipated population and housing increases, as well as objectives for economic growth, resource conservation, and energy and energy.

As noted in past plans, a visual inventory should be used as a tool for determining which areas in the community are worthy of special consideration. This inventory should be utilized as one layer of data to be considered in conjunction with the land use recommendations of the plan just as other natural resources, (forests, water, wetlands etc.) are considered. The careful siting of structures and the layout of parcels in new subdivisions will play a critical role in the conservation of Shelburne's scenic areas. Plans for future development should recognize these visual resources and their important contribution to the overall character of the Town.

IV. POPULATION

A. POPULATION: CURRENT PROFILE AND GROWTH TRENDS

Shelburne's 7,144 residents reported in the 2010 Census mark the high point in the town's population history. The decade of the 1990s saw 1,073 new Shelburnites, the third greatest increase in the town's history, while the decade of the 2000s saw 200 new Shelburnites added to the Town. The greatest decade of absolute population increase occurred during the '60s, with an increase just under 2,000 (1,923).

Population change in Vermont stabilized during the post WWII years, and then "took off," beginning in the early 1960s. Shelburne was no exception, increasing from 1,800 residents in 1960 to the present 7,000. The population of this Town is now, remarkably, 5 times greater than it was in 1950. As Graph 1 depicts, sustained population growth is not a legacy in this town.

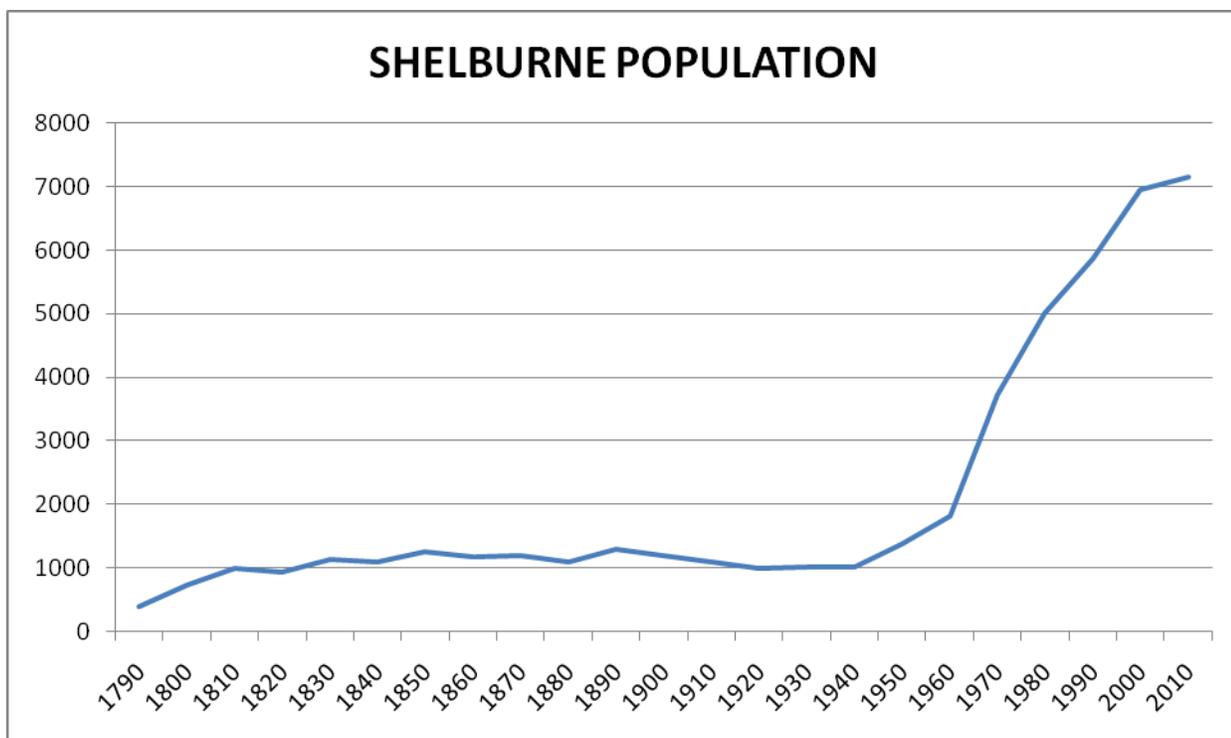


Figure 1. Shelburne Population History 1790-2010

Source: U.S. Census of Population and Housing, prepared by the Center for Rural Studies

As noted in previous plans, Shelburne's population hovered at 1,000 inhabitants for much of its history since white settlement. In six of the decades between 1810 and 1950, the population actually declined. The most dramatic decline reached from 1890 well into the 20th century and extended for 30 years when the town lost 303 residents, some 23 percent of our 1890 total.

Growth stabilized during the Great Depression, setting the scene for a post WW-II revival. In 1950 the Town hit its all time population high of 1,365 to date, thereby surpassing the previous high, 1,300 in 1890.

Population

There has been increased growth in every decade since 1950, with each decade establishing a new all-time high total population for the Town.

Town population totals, rates of change, and the composition of that change are among the most critical indicators a community has to consider impacts of changing numbers of humans on the natural environment. Population totals, or “absolute” numbers tell part of the population story. A second indicator lies in consideration of the rate of change. Table 1 shows totals and percent change, calculated by dividing the total change in each decade by the base or absolute population at the beginning of the decade. This results in the percent change, or growth rate, for the decade.

Planners often use an annual rate of change when discussing population growth and this is simply the decade rate divided by 10. As the table shows, Chittenden County’s growth rate has exceeded Vermont’s growth rate in every decade since the forties. Shelburne’s growth rate has exceeded Vermont’s growth rate in each of those six decades as well. According to recent Census enumeration, since 2000, the rate of growth dipped to roughly 20 persons per year. However, over the long term (1950 to 2010), Shelburne’s population growth has averaged over 96 persons per year.

Table 1. Population Totals, Absolute and Percent Change for Shelburne, Chittenden County, and Vermont State, 1940 to 2010

Decade	<i>Shelburne</i>			<i>Chittenden</i>	<i>Vermont</i>
	Total End of Decade	Change over Decade	Change %	County Change %	State Change %
1940-50	1,365	355	35.1%	20.1%	5.2%
1950-60	1,805	440	32.2	22.8	3.2
1960-70	3,728	1,923	107.5	33.2	14.1
1970-80	5,000	1,272	34.1	16.1	15.0
1980-90	5,871	871	17.4	14.1	10.0
1990-00	6,944	1,073	18.3	11.2	8.2
2000-10	7,144	200	2.9	6.8	2.8

Source: “200 Years and Counting,” a Center for Rural Studies Publication, and US Census of Population and Housing.

B. COMPARING GROWTH RATES TO OUR NEIGHBORS

The preparation of a Town Plan is an opportunity for community to “take stock” of its situation. As noted by staff at UVM’s Center for Rural Studies, Shelburne often takes its mark from neighboring towns. And most typically South Burlington and Charlotte frame our stock-taking. Tables 2 and 3 below present population “markers” appropriate for taking stock in Shelburne.

South Burlington and Charlotte abut Shelburne to the north and south. They represent the major routes to work, to shop, to theatre, and out of town to almost anywhere. More critically, they represent contemporary “cases” for looking at where we have been (a more rustic, rural place like Charlotte) and where, sprawl driven, we may well be going. That might be the suburban South Burlington (chartered as a city since just 1961). Clearly changes over time are implied when comparing Shelburne with these two neighbors, a rough kind of “before and after.”

Although a number of other “marker” places could have been selected, Tables 2 and 3 also present information about the Towns of Colchester and Williston (bell weather communities that are recognized to embody significant or perhaps even extreme development, at least by Vermont standards), the City of Burlington (a service center which, is shared with the rest of the state), the City of Montpelier, Chittenden County, and the state of Vermont.

Table 2 contrasts absolute growth in terms of numbers of residents. Shelburne’s population exceeds Charlotte’s population by just 150 in 1950, but by 2010 we are almost twice the size of Charlotte, a difference of some 3,390. Shelburne “leads” Charlotte in growth, experiencing its largest decade of growth in the 1960s while Charlotte’s growth spurt occurs a decade later. South Burlington, one of Vermont’s leading growth communities over the past 50 years, exceeds both southern neighbors with its greatest growth leap occurring in the 1950s and with sustained growth in the 1960s, 1980s, and 1990s.

Fifty years ago South Burlington was just two-thirds again as large as Shelburne; by 2100, it is over 4 times as large. Charlotte trails both its neighboring communities to the north, but with its 2100 population of 3,754 it ranks 41st in total population of all Vermont’s 246 cities and towns, within the top quintile. South Burlington was the 5th largest city or Town in the state. It should be noted that Shelburne’s 2010 population makes it the 18th largest place in the state, just behind Winooski (17th largest at 7,267) and ahead of 19th ranked St. Albans City (6,918).

Other 2010 rankings for places within Vermont include the following: Burlington, at almost 42,417 the largest place in the state and twice as large as its nearest competitor (Essex Town, which includes the village at over 19,587), Colchester in 4th place, Montpelier in 15th and Williston, with 8,698 residents, ranked 12th.

Population

Table 2. Absolute Population Change for Various Cities and Towns in Vermont, 1950 to 2000

Geographic Division	<i>Absolute Population Change</i>						<i>Total Population</i>	
	1950-60	1960-70	1970-80	1980-90	1990-2000	2000-2010	1950	2010
Charlotte	56	531	759	587	421	185	1,215	3,754
Shelburne	440	1,923	1,272	871	1,073	200	1,365	7,144
South Burlington	3,624	3,129	647	2,130	2,070	2,090	3,279	17,904
Colchester	821	4058	3853	2102	2255	81	3,897	17,067
Williston	302	1703	656	1044	2763	1,048	1,182	8,698
Burlington City	2376	3102	-921	1415	697	2,593	33,155	42,417
Montpelier	183	-173	-368	6	-212	-180	8,599	7,855
Chittenden County	11,855	24,706	16,403	16,227	14,810	9,974	62,570	156,545
Vermont State	12,143	54,850	66,725	51,302	46,069	16,914	377,747	625,741

Source: US Census of Population and Housing and Vermont Department of Health

Growth rates, depicted in Table 3, are greatly influenced by the absolute population numbers; the larger a place is at an initial point in time, the more people have to be added to the base to affect dramatic rate changes. Shelburne’s greatest growth rate in history occurred during the 1960s; and this is mirrored in the rates depicted by the other growth communities of Colchester and Williston.

In terms of contrasts with our neighbors South Burlington and Charlotte, several factors are operating. The fact that South Burlington had such an absolute growth in the 1950s and 1960s really stabilizes its growth rate. However, Charlotte with a smaller and more slowly expanding base population actually exceeds Shelburne’s rate in the 1970s and 1980s reminding us again that analysis must include both the rates and the absolute population totals. Discussion of absolute growth indicated that the data suggest South Burlington leads Shelburne as well as Colchester and Williston by a decade in showing its highest in history 111percent increase in the 1950s.

South Burlington is the newest of Vermont’s nine cities and differs dramatically in population growth rates from those depicted by more traditional Vermont cities (Rutland, Montpelier, Barre, Winooski, St. Albans, Brattleboro and Burlington). These places had established industrial centers in the 19th century and have a different, much more stable rate of change. Ironically, the older cities’ rates of change parallel Shelburne’s experience from 1820 to 1950, including occasional decades of slight decline. Rates showing decline are considered a very serious matter in this growth oriented society, but of more consequence is the fact that negative population growth rates may actually drop a city from one eligibility category to a lesser or non-existent status, seriously handicapping the unit in its quest for federal aid. Literally thousands of federal programs provide assistance to local civil units seeking to meet residential needs, but again the smaller

places, typically under 2,500 in population, struggle for recognition. It would appear that Shelburne will not face such a situation in the foreseeable future.

***Table 3. Growth Rate by Decade
for Various Cities and Towns in Vermont, 1950 to 2000***

Geographic Division	1950-60	1960-70	1970-80	1980-90	1990-00	2000-10
Charlotte	5%	42%	42%	23%	13%	5.2 %
Shelburne	32%	108%	34%	17%	18%	2.9 %
South Burlington	111%	45%	6%	20%	16%	20.3 %
Colchester	21%	86%	44%	17%	15%	0.5 %
Williston	26%	115%	21%	27%	57%	13.7 %
Burlington City	7%	9%	-2%	4%	2%	6.5 %
Montpelier	2%	-2%	-4%	0%	-3%	-2.2 %
Chittenden County	3%	14%	15%	14%	11%	6.8 %
Vermont	3%	14%	15%	10%	8%	2.8 %

Source: US Census of Population and Housing, 1950-2010.

C. THE COMPONENTS OF POPULATION CHANGE: BIRTH, DEATH AND MIGRATION

In this section, we extend analysis of population change in Shelburne to examine the population components in greater detail. Demographers inform us that community population can change in just three ways: through birth, death and migration. Given the lack of any direct control of domestic mobility in these United States, the government does not collect information regarding in and out migration at a community level. Although a variety of possible indicators to estimate migration exist (moving van company records, car and driver's license registration, real estate sales, etc.), none are particularly accurate or easy to acquire. However, at least a century of concern for public health and well being has lead to the collection of reasonably accurate information on births and deaths. Annual data regarding births and deaths for Shelburne are readily available, reported to the Department of Public Health and compiled by the state for both state and local reporting units.

An indirect but accepted technique for estimating migration in our town can be employed using birth and death data. We simply take the total annual births and deaths in Shelburne from 2000 to 2100, add them together and subtract them from the absolute number of new residents from 2000 to 2100 as ascertained by data collected from the recent Census. The result is an estimate of migration in town. As noted in tables above Shelburne's absolute population increase from 2000 to 2010 was 200 residents.

Population

Table 4 depicts “natural increase” trends (births minus deaths) in Shelburne over several decades. Significantly, for the period between 2000 through 2009 (inclusive), natural increase was negative. That is, the number of deaths over this period (676) exceeded the number of births to Town residents (594) by 82. Offsetting this deficit and wholly responsible for the overall population growth in the Town in the last decade was in-migration, Given an absolute population change of 200 for the decade, and a “natural increase” of -82, we arrive at an in-migration estimate of 282 (or 28 persons per year).

An important conclusion to be gleaned from Table 4 is that for the first time in decades, all of Shelburne’s population increase in the was due to in-migration rather than natural increase . Contrast this with the previous decade (the 1990s) where 29.3 percent of growth was due to natural increase, or the 1980s when natural increase was 54.3 percent, or in the 1970s, when natural increase was just 21.2 percent.

**Table 4. Components of Population Change:
Absolute Natural Increase and Migration.
1950 to 2010.**

Geographic Division	Natural Increase						Assumed Net Migration					
	1950-60	1960-70	1970-80	1980-90	1990-00	2000-10	1950-60	1960-70	1970-80	1980-90	1990-2000	2000-2010
Shelburne	333	375	270	473	314	-96	107	1548	1002	398	759	296

Source: US Census of Population and Housing, Vermont Department of Health, and Shelburne Town Clerk’s office

As noted in previous Plan, great vacillation occurs in the ratio of natural increase to increase due to migration over recent decades. Previous plans have indicated that the relationship between natural increase and in-migration in Shelburne’s could be better understood when viewed in the context of population growth and in-migration levels in the county and state. During the 1960s and 70s, much of Shelburne’s growth was attributable to in-migration associated with the Town’s initial suburbanization. By the 1980s, however, the amount of growth due to in-migration was outweighed by population growth attributable to those who already lived here. In the 1990s, however, the primacy of natural increase was once again eclipsed by in-migration. And, as noted above, during the 2000s, the rate of natural increase dropped below zero for the first time.

These ratios are, of course, influenced by public policy, including local efforts such as planning and zoning. Shelburne’s decision to encourage quality facilities for elders is evident in the data for the 1990s and will continue to influence our demographics in coming decades. Future policies are likely to impact other aspects of development in the community in a similar fashion. Of course, the focus of such policies will be to achieve goals relating to the type, location, and amount of development in the community. Local public policies recommended by this Plan are not intended to advantage or disadvantage any particular person or group.

D. Age Composition

Shelburne's elder population has grown significantly, while the number of children under five is declining. The share of the population made up of persons in their 20s and 30s appears to have stabilized after a period of decline. At least to some degree, these changes may be a result of local policy. Data underlying these conclusions is presented as a series of population pyramids in Figure 2. A population pyramid is a type of bar graph in which one half shows the number of males and the other half shows the number of females in a certain population. Each bar is divided into a five-year age group. Considerable information about the population can be extracted from a population pyramid, such as the development of the population, the number of dependents within a population, as well as the male to female ratio.

When comparing the Shelburne Population Pyramid of 2010 to the ones of 2000 or 1990, it can be noted that the upper portion of the pyramid—representing the population over 50— has become increasingly prominent , particularly when compared to the pyramids for Chittenden County and Vermont as a whole. Other changes include the decline in the population under 50. These changes may have occurred due to a number of different factors. The decrease in the young adult population may be of some concern to the Town, and additional information should be gathered to ascertain why this has occurred. Looking ahead to the future, the “baby boom belt” in the 2100 pyramid is centered on the 50-54 category. By the year 2015, many baby boomers will be retiring. This, too, may be a concern to the Town, since Shelburne could be facing a situation in which there will be a large population of dependents (ages 0-15 and 65+) compared to those who will be supporting them (ages 16-64).

Population pyramids for Shelburne are decreasingly comparable in shape to the Chittenden and Vermont pyramid populations. The Vermont pyramids are slightly more similar to those of Shelburne than are the pyramids for Chittenden County. This may be due to the fact that the University of Vermont and other institutions of higher education are located in Chittenden County, increasing the number of younger adults in that population. In both the Vermont and Shelburne population pyramids, it is easy to see the movement of the “baby boomer” population. In 1990, the largest age groups were 30-34, 35-39, and 40-44 for both Vermont and Shelburne. In 2010, this “baby boom belt” has moved up on the pyramids and the older age groups have all increased. .

Population Pyramids

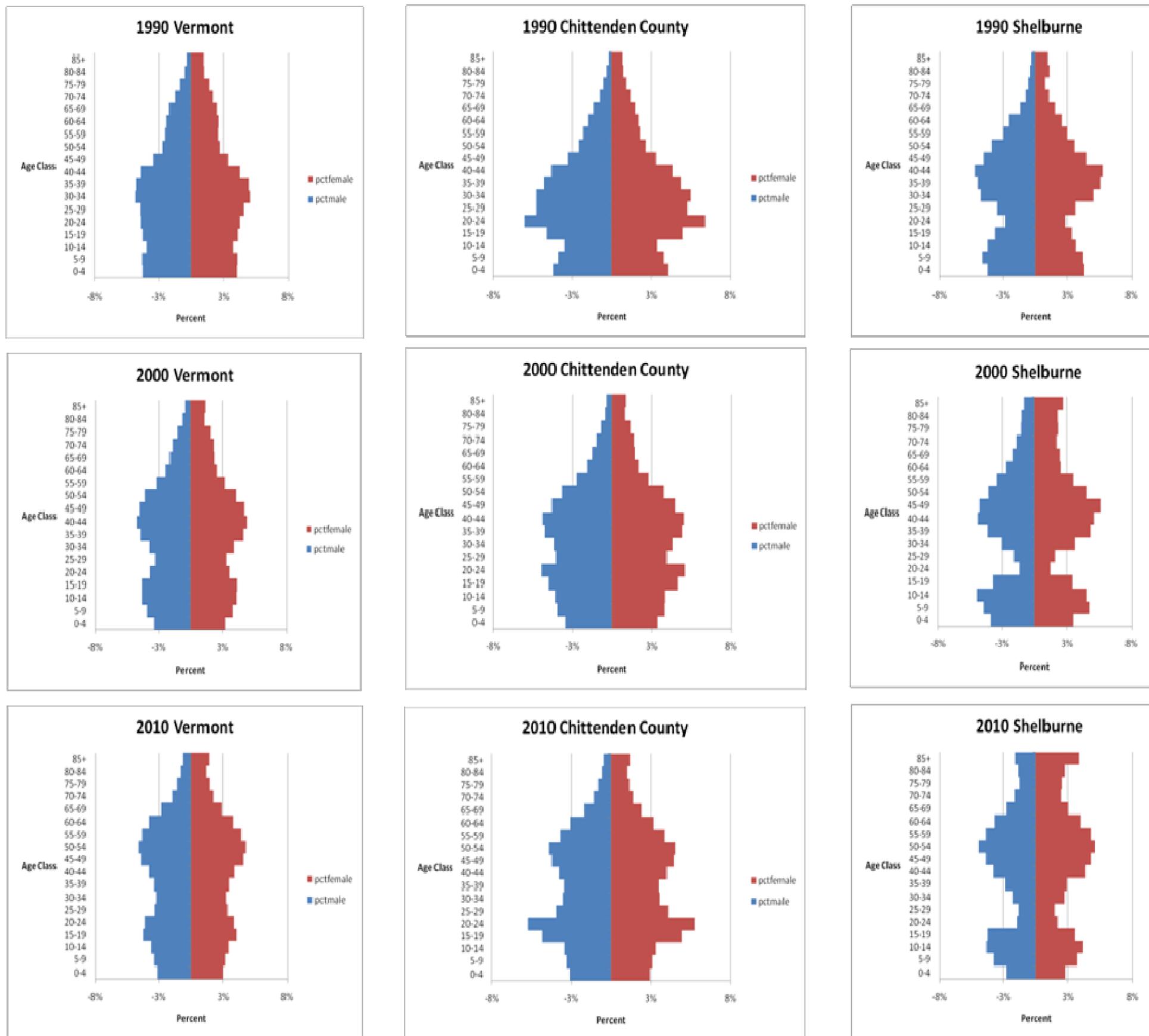


Figure 2. State, County, Town Population Structure, 1990, 2000 and 2010
Source: US Census

E. Population Estimates and Projections

Over the past six decades Shelburne’s population has grown dramatically from 1,365 persons in 1950 to 7,144 persons in 2010. Over that period on average, the Town has added just over 96 new residents per year. The growth rate was highest in the sixties and lowest in the fifties and 2000s. Between 1970 to 2000 growth held relatively steady while averaging 107 persons per year. In the last decade, however, the growth rate has dropped to an average of 20 new residents per year.

Shelburne is a part of Chittenden County, the most rapidly growing county in Vermont. As indicated in Volume I of this Plan, Shelburne has determined to strive for a growth rate in line with what it has experienced in the past—110 new persons per year. This figure is somewhat higher than the projected population growth (based on regional household forecasts for Shelburne) of 15 persons per year. See Table 7.

Table 7. Household and Population Projection, 2010-2030

Unit	2010	2020	2030	20 year growth
Total households	2,957	2,991	3,317	360 households
Persons per HH	2.37	2.28	2.20	
Annual growth rate 0.61 percent				
<i>Households to Population conversion, assuming presented persons/HH</i>				
Population Forecast	7008	6819	7297	289
<i>Forecast built on Census 2010 enumeration and 20 year increase forecasted above</i>				
Population	7144	7288	7433	289
Growth in persons per year is 14.45				

Sources: US Census; Chittenden County Regional Planning Commission, as derived from Regional Travel Demand Model

F. *Implications:*

After 150 years of hovering around 1,000 residents, the past half century has witnessed significant population growth in Shelburne. Shelburne’s growth rate in late 20th century exceeded both the rate of growth for Chittenden County and the State of Vermont. Shelburne 2010 population of 7,144 is an all time high.

Population

As noted in previous Plans, Shelburne has developed a considerable population base without the accompanying urbanization, e.g. high rises, factories, and city-level traffic. However, as noted in the transportation section of the Plan, high traffic volumes are becoming an increasingly common occurrence, particularly in Shelburne village, where the “level of service” at the main intersection is rated F.

It should be noted that 29.3 percent of Shelburne’s population increase in the 1990s was due to natural increase while, the converse, 70.7 percent was due to in-migration. Contrast this with the previous decade where it was 54.3 percent due to natural increase, the 1970s, when natural increase was just 21.2 percent, or the 2000s, when there was no natural increase in the local population.

Over the past several decades, Shelburne has experienced growth due to both natural increase and in-migration. The swing was most evident in the 1980s where about half of Shelburne’s growth is determined by natural forces, twice the ratio of either the 1970s or 1990s.

These ratios are, of course, influenced by public policy, including local efforts such as planning and zoning. Shelburne’s decision to encourage quality facilities for elders is evident in the data for 1990 and 2000 and will continue to influence our demographics in coming decades. Future policies are likely to impact other aspects of development in the community in a similar fashion. Shelburne’s elder population is growing dramatically, and, to a degree, this is a result of local policy.

V. HOUSING

A. CURRENT PROFILE

As noted above, Shelburne's population grew by 200 individuals between 2000 and 2100. During the same decade, the Town saw a corresponding increase in its housing stock of 344 housing units. The level of housing growth for the period 1990 to 210 is depicted in Table 8 below. The disproportionate level of housing growth relative to population growth is largely explained by decreasing average household sizes.

Table 8. Housing Growth: Town of Shelburne and Chittenden County, 2000-2010

Geographic area	2000				2010				Change 2000-2010	
	Total Housing Units	Occupied Units	Vacant Units	% Occupied	Total Housing Units	Occupied Units	Vacant Units	% Occupied	Number	Percent
Shelburne	2,741	2,632	109	96.0	3,085	2,880	205	93.4	344	13%
Chittenden County	58,864	56,452	2,412	95.9	65,722	61,827	3,895	94.1	6,858	12%

Source: 1990 and 2000 U.S. Census of Population and Housing

Between 2000 and 2010, the amount of housing in Shelburne grew by nearly 13 percent, from 2,741 units to 3,085 units. This rate slightly exceeded Chittenden County's housing growth rate for the same period (roughly 12 percent). Between 1990 and 2000, the amount of housing in Shelburne grew by nearly 17 percent, from 2,350 units to 2,741 units. This rate exceeded Chittenden County's housing growth rate for the same period (13 percent), although not as dramatically as was the case in the 1980s (when the Town's rate of housing growth was 10 percent greater than the County's).

The vast majority of the Town's residential stock is single-family, year round, owner occupied housing. Figures from the 2000 Census show that about one fifth (19.9 percent) of the total housing stock was rental in the 1990s, which is a return to the 19 percent figure reported in the 1970s. Census data for 1980 to 1990 reported rentals at 15.7 percent of the housing stock. The 2000 figure for Shelburne is still considerably lower than the regional level, which is 33.9 percent. This would seem to imply that Shelburne's housing stock is not oriented toward transient occupation, i.e., it is stable.

Of the 2,741 housing units in Shelburne in 2010, fewer than 7 percent were vacant in 2010. This is consistent with Chittenden County's vacancy percentage. As noted by the Chittenden County Regional Planning Commission, "Housing economists argue that a well-functioning housing market should have a slightly greater supply of housing than demand for housing in order to provide households with sufficient choice (as to type, location and cost). Although there is not an official standard and economists do not agree

Housing

on a specific rate, most economists who stress the importance of vacancy rates suggest that the rate should be between three and six percent.”¹

During the 1980s, Shelburne added 631 housing units. This number far exceeded the 391 added between 1990 and 2000 and the 344 added between 2000 and 2010.

Physically, housing in Shelburne remains concentrated in a wide north/south belt through the central part of the town, especially easterly of Route 7 to Spear Street and within the Village. Housing becomes sparser as one moves further east from Spear Street toward Shelburne Pond and as one goes westerly away from the Village toward Lake Champlain. This concentration of housing is consistent with the designated Sewer Service Area as well as the availability of public water. See the Housing Location and Sewer Service Area Map (Map 19). According to an analysis prepared for the Planning Commission in 2010, the current growth potential of single family residences within the Sewer Service Areas (SSA) is in the vicinity of 1400-1450 units. An analysis of growth potential completed several years ago estimated the residential growth potential outside the SSA at approximately 400 residential units.

B. TRENDS AND ISSUES

1. Growth

Population growth during the decade between 2000 and 2010 was modest relative to previous decades and to the county. This modest level of growth followed a period during which more robust growth was experienced, or at least anticipated. As described in a later section of this Plan, Shelburne’s new sewage treatment facilities came on line in early 2001. Soon thereafter, the Planning Commission received no fewer than five applications for significant residential subdivisions in the Sewer Service Area delineated under the Town’s Sewer Capacity Allocation Ordinance. Totalling 196 proposed units, the first projects to be reviewed were: Boulder Hill (37 single family units), Rice Woods (62 single family and condominium units), Forest Park/River Crest Estates (68 single family and condominium units), Shelburne Family Housing (18 duplex units), and Bays End (5 single family units). The Town also subsequently received applications to expand two significant senior housing projects: Shelburne Bay Senior Living Community (47 units and later another 72 units) and Wake Robin (35 units). However, the pace of growth experienced in the early part of the 2000s was not sustained. Further, at least one major project (Rice Woods) was not pursued.

In years past, the Town’s Sewer Capacity Allocation Ordinance—which establishes a Sewer Service Area and contains a procedure for assigning treatment capacity to developers—and phasing conditions imposed on larger developments determined that larger developments would be constructed over a period of as many as least six years. Owing to sewage treatment plant upgrades, projects no longer wait in line for waste treatment allocations. This has meant that, at least in theory, the rate of housing growth in the community could accelerate. As shown in Table 9 below, approved residential growth in the Town can be expected to average in excess of 47 units per year.

¹ Memorandum “2010 COUNTYWIDE HOUSING NEED” from the Housing Supply Goals Task Force, November 19, 2003.

Table 9. Estimated Year of Construction, Selected Approved Residential Units

RESIDENTIAL BUILD OUT PROJECTION									
project	total new units built/permited	Singlefam/duplexes	multifamily	2013	2014	2015	2016	2017	
O'Brien Family	22	0	22	0	5	5	5	5	2
Sugarwoods	15	6	15	0	3	3	3		
Cabot	6	0	6	0	1	1	1	1	1
Koerner*	1	0	1	0		1			
Beeken/West	2	0	2	0	1		1		
Lissarrague 1	5	3	5	0		1		1	
Bahrenberg 1	4	2	4	0	2				
Shelburne Point	7	2	7	0	1	1	1	1	1
API	5	0	5	0	?				
Kellyview	3	2	3	0		1			
Rivercrest*	67	64	27	40	1	1	1		
WAG(Sutton Farms)	6	4	6	0	1		1		
Lilly	8	1	8	0	2	2	2	1	
Rice/Carroll	4	0	4	0		1	1	1	1
subtotal	155	84	115	40	17	17	16	10	5
<i>Projects that have not received final plan approval</i>									
CHT/Harrington	48	0	6	42	42	6			
Cathedral Square	36	0	0	36	36				
subtotal	84	0	6	78	78	6	0	0	0
Totals	239	84	121	118	95	23	16	10	5
5 Year Total =	149								
* = project following amendments									

Source: Shelburne Planning Office

Previous Plans have noted that several smaller residential subdivisions have been approved in locations outside the Sewer Service Area which, due to soil constraints limiting the ability to site septic systems are less suitable to dense residential development. In 2002, the State Agency of Natural Resources adopted new Wastewater and Potable Water Supply Regulations which, in part, validated the use of new technologies in the design of septic disposal systems. Based upon a study by the Chittenden County Regional Planning Commission, the adoption of these new technologies is not likely to render that portion of Shelburne outside

Housing

the Sewer Service Area susceptible to significantly denser residential development than that which was possible under the prior Environmental Protection Rules.

As mentioned above, Shelburne's housing stock grew by 344 units between 2000 and 2010, or an average of 34 units per year (as compared to 391 units between 1990 and 2000, or an average of 39 units per year). In the opinion of 52 percent of the respondents to the *Shelburne 2003 Community Survey* ("the Survey")², this rate of residential growth was "too fast," while about 46 percent of respondents felt it was "just right." These responses suggest that the community feels that the rate of growth experienced in the 1990s may be somewhat greater than what it would like to see in the future. The 2010 Townwide Opinion Survey did not repeat the question regarding the rate of residential growth..

2. Affordability

The cost of housing in Shelburne is high relative to other communities in the region. The median price of a primary residence sold in Shelburne in 2010 was \$298,200 while the average home price that same year was \$346,773. In Chittenden County, the comparable figures were \$246,750 and \$279,947, while, for the State as a whole, they were \$194,000 and \$222,436.³ In addition, Shelburne's monthly rental housing cost is among the highest in Vermont with a median gross rent figure in the period between 2005-2009 for all units of \$1,701, compared with \$951 for Chittenden County and \$781 for the State.⁴

Existing affordable housing in Shelburne includes the three mobile home parks located on Route 7 north, Spear Street, and in the northeast corner of Shelburne village, totaling approximately 110 mobile home lots. One of the first subsidized rental housing projects in Shelburne—the 18-unit Shelburne Family Housing development on Route 7, just north of Cynosure Drive, and 2-unit Noonan House project—was completed in 2004. This project complements the four units of subsidized housing developed by the Burlington Community Land Trust (BCLT, which subsequently merged with the Lake Champlain Housing Authority to form the Champlain Housing Trust) and which are located on Addie Lane. Champlain Housing Trust (CHT) also helped bring to market another 14 units of affordable housing constructed on Harbor Road. In 2010, CHT began work on a project with Cathedral Square Corporation that would bring as many as 78 units of affordable housing to the so-called Dyer property. Finally, two units of perpetually affordable housing are included in the approved, but yet to be built, Rice Woods subdivision while four more are included in the condominium portion of the Rivercrest development.

Shelburne has supported the development of affordable housing by helping obtain grant funds by including accessory use provisions in our zoning ordinance, by allowing apartments in the Village District with no additional lot area, by participating in the regional housing task force, and by waiving a portion of impact fees that would otherwise be applicable to affordable housing projects.

According to state statute (24 VSA § 4382 (a) (10),) the housing element of a municipal Plan "shall include a recommended program for addressing low and moderate income persons' housing needs as identified by the regional planning commission pursuant to section 4348a(a)(9) of this title."

During the 2000s the Housing Supply Goals Task Force created by the Chittenden County Regional Planning Commission (CCRPC) prepared a series of recommendations regarding Housing Supply Goals. According to the Task Force, Chittenden County Housing Supply Goals should have the following three components:

² Prepared by the Shelburne Planning Commission in collaboration with the University of Vermont's Center for Rural Studies

³ Vermont Department of Taxes, Property Transfer Tax Data

⁴ Vermont Housing Data, www.housingdata.org

1. Total Housing,
2. Moderate Income Housing (housing units that can be afforded by households earning 80 percent to 120 percent of the Burlington MSA’s median household income), and
3. Affordable Housing (housing units that can be afforded by households earning less than 80 percent of the Burlington MSA’s median household income). Communities should be encouraged to consider the need to identify other types of housing goals that relate to people with special housing needs in municipal programs of local actions to address housing needs.

According to the Task Force, an appropriate countywide housing need goal for the period 2000-2010 was 10,000 units. Applying allocation factors developed by the Task Force, the Chittenden County Regional Planning Commission (CCRPC) previously recommended that the total housing need goal for the Town of Shelburne over that period be 531 units. The number 531 was meant to include a total of 53 units of Moderate Income housing as well as 53 units of Affordable Housing. Together, these targets represent 20 percent of the total growth. Although this 2013 Comprehensive Plan for Shelburne covers a time period beyond the time frame envisioned by the regional Task Force, the housing goals included herein continue to reflect the '10 percent targets' recognized by the Regional Planning Commission. The Town will need to revisit its housing goals at such time as new targets are identified by the Regional Planning Commission. According to the 2010 Townwide Opinion Survey, more than half of Shelburne residents believe the Town’s goal for developing affordable housing is “about right.” Another 28 percent of respondents believe the 10 percent goal is too low. Significantly, some 89 percent feel the Town’s goal for the creation of “workforce” or moderate income housing is about right or too low.

Policies to address this identified housing need are presented in Volume 1 of the Plan. In general, local programs to address housing needs focus on reducing the cost of housing, by increasing supply or subsidizing the development of affordable units, or increasing wages. When striving to increase the supply of affordable housing, municipalities often consider whether factors such as minimum lots size work against the development of affordable housing and whether required public improvements and fees excessively burden affordable housing developers.

3. Housing for the Elderly

Shelburne has seen a significant increase in the number of units of "housing for the elderly" over the past decade. An eight- unit detached senior housing neighborhood was developed on Shelburne Road early in the decade. And, as noted above, some 47 assisted care units have been added at the Shelburne Bay Senior Living Community facility, while another 72 units have been created at the adjoining The Lodge at Shelburne Bay. Elsewhere in the community, 37 independent living units (cottages) and 18 assisted living units (i.e., health care beds) at Wake Robin. Plans for the affordable housing project on the former Dyer property mentioned above also include a significant elderly housing component. Given the “graying” of the population locally and nationally, the demand for housing for the elderly is expected to continue for the foreseeable future.

C. FUTURE/IMPLICATIONS

With its proximity to Burlington, scenic and natural beauty, quality town services and educational systems, and resilient sense of community, Shelburne remains a very desirable place to live. It can be anticipated that it will continue to experience significant pressure to increase its housing stock.

Housing

According to the previous version of this plan, some Shelburne residents have expressed concern that the Town has reached a point where the failure to effectively control growth will seriously compromise the qualities which have made it such an attractive place to live. There are also some residents who do not share this concern. Following 160 years (1790-1950) of a relatively stable population of approximately 1,000 persons, Shelburne has experienced growth to the point where we now number over 7,000 residents.

Concern has been expressed that steps be taken to assure that growth does not despoil the Town's natural and scenic qualities; overburden its municipal services and educational systems; and dilute the sense of community. This concern is evidenced, in part, by the responses of Shelburne residents to questions presented in a 2003 opinion Survey. With respect to rate of growth and, as mentioned above, a majority of respondents to that survey (52 percent) were of the view that the town's residential growth in the 1990s (391 houses) was too fast. This is of particular interest in light of that decade's much slower growth rate than that of the 1980s (631 houses) when the town, like now, had sewer capacity available.

A substantial majority of respondents to the 2003 Survey (88 percent) agreed or strongly agreed that the maximum residential build-out under current zoning regulations (approximately 4,700 houses, there being about 2,700 houses currently in existence) is too many. A majority of respondents (54 percent) expressed the opinion that Shelburne should not encourage future residential development.

In addition, with respect to the location of any future residential development, respondents to the Survey expressed the view that it should be directed toward existing neighborhoods (76 percent) or the designated Sewer Service Area (70 percent). Further, a large majority of respondents (81 percent) felt that future residential development should be in clusters so as to protect open space and natural resources.

VI. ECONOMY

In general, the Vermont economy has been transforming itself over the past 35 to 40 years from a predominantly agrarian-based economy, to a multi-faceted and diverse economy whose residents possess most economic generating skill-sets found throughout the country. This is particularly true within the northwest region of the state, especially Chittenden County in which Shelburne is located.

Shelburne is currently the home of manufacturers, retail establishments, service providers, and major tourist attractions. But, the numbers of some types of firms are diminishing. Today, a few agricultural enterprises remain in the Town, while traditional primary manufacturers either now lease out their facilities, or expand in different locations. Traditional service providers have no place to expand. The historic use of the land is rapidly being turned into housing stock, or conserved as open space. Over the past 10 years, there is a subtle shift that Land either historically or otherwise previously set aside for agricultural, commercial or industrial use is now more often sought after for housing purposes.

Shelburne, with its excellent public and now private schools; considerable conserved resources, convenient proximity to Lake Champlain and the thriving greater Burlington, Vermont (Chittenden County) job and career market is slowly but surely transforming itself, possibly un-wittingly, into a “desirable” residential suburb - possibly the first such entity in Vermont.

Unless this trend is checked in order to either create greater economic diversity/opportunity, or for the most part completed, the current economic well-being of the community could be in jeopardy, and the face of the Town will be changed forever.

A. EMPLOYMENT AND EMPLOYERS

In 2010, some 3,144 jobs were provided by “covered” 316 employers in Shelburne (those required to enroll in unemployment insurance programs). This compares with 93,231 covered positions in 5,891 employers provided in Chittenden County as a whole. It must be noted that these figures apply to jobs which might or might not be held by residents of the Town. According to data from the Vermont Department of Labor (Economic and Labor Market information), “covered” employment levels in the Town and region have declined in the last decade. As shown in Table 10 below, employment levels in Shelburne have declined more severely than those in the County as a whole. Locally, covered employment levels fell 6.5 percent between 2000 and 2010, while regionally covered employment levels dropped 2.2 percent. Shelburne’s relative decline is attributable to job losses in a range of sectors.

Economy

Table 10. Change In Covered Employment in Shelburne

NAICS Industry	Covered Employment		Percent Change		
	2000	2010	Shelburne	Chittenden	Vermont
Total Covered - all ownerships	3,362	3,144	-6.5%	-2.2%	-1.2%
Private ownership	3,089	2,755	-10.8%	-5.5%	-3.6%
Goods Producing	597	330	-44.7%	-32.3%	-26.8%
Natural Resources and Mining	72	(c)		-35.8%	-1.9%
Construction	99	(s)		-20.7%	-9.4%
Manufacturing	426	246	-42.3%	-35.9%	-34.1%
Trade, Transportation, and Utilities	821	770	-6.2%	0.1%	-4.2%
Financial Activities	51	80	56.9%	-11.0%	-6.2%
Professional and Business Services	214	148	-30.8%	6.4%	11.3%
Education and Health Services	468	730	56.0%	20.9%	30.3%
Leisure and Hospitality	687	533	-22.4%	9.8%	-2.0%
Government total	273	389	42.5%	17.8%	11.5%
SOURCE: Vermont DET					

Table 11. Change In Employers in Shelburne

NAICS Industry	Establishments		Percent Change		
	2000	2010	Shelburne	Chittenden	Vermont
Total Establishments - all ownerships	333	316	-5.1%	4.3%	1.7%
Private ownership	317	301	-5.0%	4.2%	2.0%
Goods Producing	37	24	-35.1%	-4.9%	2.7%
Natural Resources and Mining	3	1	-66.7%	13.0%	17.5%
Construction	21	16	-23.8%	-0.5%	11.0%
Manufacturing	13	8	-38.5%	-16.7%	-18.5%
Trade, Transportation, and Utilities	78	73	-6.4%	-2.6%	-5.8%
Financial Activities	19	26	36.8%	7.5%	4.1%
Professional and Business Services	49	57	16.3%	28.6%	28.8%
Education and Health Services	34	42	23.5%	11.1%	13.9%
Leisure and Hospitality	38	33	-13.2%	12.0%	1.4%
Government total	16	15	-6.3%	7.6%	-2.1%
SOURCE: Vermont DET					

B. TRAVEL AND ATTRACTION ECONOMY

The travel and attraction (tourism) sector of Shelburne’s economy is especially noteworthy. Elements of this sector include the Vermont Teddy Bear Company, the Shelburne Museum, and Shelburne Farms. The Vermont Teddy Bear Company is one of Vermont’s leading visitor destinations. Meanwhile, the Shelburne Museum and Shelburne Farms are landmark enterprises that bring national recognition to the local scene. Additionally, a new food-oriented destination/hub may be emerging south of the Bostwick Road-Marsett Road-and Shelburne Road intersection.

C. INCOME, WAGES, AND UNEMPLOYMENT

Based on Vermont Tax Department data for 2009, Shelburne residents are among the wealthiest in the state. As shown in Table 12, according to one measure (total adjusted gross income divided by number of returns filed), Shelburne boasts an average incomes of over \$124,650, which far exceeds the average for the state of Vermont. A separate measure—average Adjusted Gross Income d per exemption—also indicates that incomes in Shelburne exceed those in the county and the state as a whole.

Table 12a. Change in Adjusted Gross Income (AGI) per return, Shelburne, Chittenden County, and State of Vermont					
				Change	
	2000	2009		Absolute	Percentage
Shelburne	\$ 95,441	\$ 124,650		\$ 29,209	30.6%
County	\$ 52,335	\$ 61,627		\$ 9,292	17.8%
Vermont	\$ 20,313	\$ 23,795		\$ 3,482	17.1%

Table 12b. Change in Average Adjusted Gross Income/ Exemption, 2000-2009					
	Average AGI/Exemption			Change	
	2000	2009		Absolute	Percentage
Shelburne	\$ 31,290	\$ 33,466		\$ 2,175	7.0%
County	\$ 24,750	\$ 28,084		\$ 3,334	13.5%
Vermont	\$ 23,118	\$ 26,804		\$ 3,687	15.9%
Shelburne as % State	135%	125%			

Economy

These data portray conflicting trends regarding changes in income levels in Shelburne relative to the region in state as a whole. When measured on a per exemption basis, growth in Shelburne’s income levels trail the region and state, while when measured on a per return basis growth in Shelburne’s income levels outpaces incomes in the region and state,

As shown in Table 13 below, the unemployment rate in Shelburne is considerably lower than the unemployment rate in Chittenden County and, even more so, than the rate statewide. It would appear that residents of the community are well positioned due to their education, training, and physical location to access relatively high paying jobs in northwest Vermont. However, it should also be noted that, although residents enjoy a relatively high level of income, the wages paid by local employers are somewhat low when compared to those paid statewide. This would seem to reflect Shelburne’s relatively low level of manufacturing employment (which is traditionally associated with high average wages) and relatively high levels of leisure and hospitality employment (which are sometimes associated with low average wages).

	Labor Force		Unemployment Rate	
	2000	2010	2000	2010
Shelburne	335,800	360,800	2.70%	6.20%
Vermont	3,730	3,880	2.00%	4.20%
	Average Wage		Change	
	2000	2010	Absolute	Percent Change
Shelburne	25234	33576	8342	33%
Chittenden	34327	46216	11889	35%
Vermont	28985	39439	10454	36%

D. IMPLICATIONS

There seems to be no reason to assume that Chittenden County’s economic strength relative to the rest of the State will diminish in the next ten years. Still, the changing employment mix is of great significance for Shelburne. When evaluated in light of the Housing Section of this plan, the Town’s economic trends depict a situation familiar throughout suburban America. By and large, new jobs will not pay enough to support the cost of residing in the community. Workers must commute in; residents must commute out.

One probable interpretation of the income data for Shelburne is that potential residents can afford to “bid up” both existing and new housing stock to the point that other economic activity can no longer afford to house their workforce within the community. Another probable interpretation of the income data for Shelburne is that the Town has a low level of manufacturing employment and other high wage options, and therefore those that wish to live in Shelburne must look outside of the Town to find a job that will pay better. A large proportion of Shelburne’s employment opportunities are in the retail, leisure, and hospitality trade, which all tend to pay lower wages. Therefore, those people working in Town cannot afford the high housing prices and must live in other communities.

According to data from the Vermont Tax Department, Adjusted Gross Income (AGI) levels in Shelburne are among the highest in the state of Vermont (. Income levels vary considerably, however. In 2009 some 37 percent of the Town's household's reported having an income of less than \$30,000 while 28.5 percent reported an income of less than \$20,000. The data suggest that many residents have retired to Shelburne and do not work, or work only part-time, and therefore have a much lower household income than the average. Income data also suggest that there is a clear divide between persons with lower incomes and those with higher incomes. The decline of the middle income class could signal that a significant sociological change is taking place in the community.

VII. TRANSPORTATION

Transportation is a fundamental part of community planning. Indeed, without a system for the movement of people, goods, and services, communities as we know them could not function. Consequently, transportation is a subject that deserves and receives a significant amount of attention in local planning efforts.

Approaches to transportation planning have evolved substantially in recent decades. Historically, transportation planners focused extensively on forecasting future levels of travel demand and developing projects, usually involving highway construction, to meet that expected demand. Early in its development, transportation planning also placed a great deal of emphasis on projects and standards that improved driver safety. Since the 1980s, planners have begun to more thoroughly analyze the costs and benefits of “alternative” transportation modes. They have also increasingly developed solutions, such as improved signal timing schemes, which increase the efficiency of the existing transportation system—and reduce energy use.

One particularly noteworthy development in transportation planning has been the growing recognition of the need for transportation system improvements to be coordinated with land use objectives and to reinforce rather than contradict them. Transportation planning decisions have a direct impact on land investment and development patterns. For example, the construction of a new road or improvements to an existing road can encourage new development as investors attempt to capitalize on the improved access to the larger economy. Similarly, an increase in development activity in an area, such as a rural residential subdivision, will generate demand for improved transportation access.

Other important developments include transportation planning’s growing emphasis on the mobility of pedestrians and the awareness of the relationship between transportation systems and general community health. Transportation planning is critical to ensure that the pace of development and improvements to the transportation network are balanced. In short, transportation planning is needed to insure that public investment decisions lead Shelburne toward its vision of the future rather than away from it.

A. SYSTEM PROFILE

Shelburne’s transportation system serves two distinct and important functions. One is to safely and conveniently link residents with local businesses, services, and households. The other is to serve as link between the community and the outside world. It is important to keep both functions in mind when evaluating the local transportation network because the conflicts and tensions between the two uses can be great, particularly with respect to roads. The tension between these functions is complicated by the fact that authority over transportation facilities is divided among the Town, the State, and other entities.

1. Existing Road Network

Shelburne is served by a well maintained highway network. Totalling 56.9 miles, this network of public roads consists of 54.5 miles of paved roads and 2.38 miles of gravel road. Two Vermont State highways, U.S. Routes 7 and 116, traverse the Town providing Shelburne's north/south access. Route 7 serves the western side of town. Route 116 serves the eastern side. See the Shelburne Base Map (Map 1), which illustrates the layout of the road network.

The majority of highways in the Town (88 percent) are locally maintained and fall into one of four categories as described by the State of Vermont. Shelburne contains roughly 6.6 miles of state highway, although no

Transportation

Class I highways (which are town highways which form the extension of a state highway route and carry a state highway route number). Shelburne's roads are classified as either Class II or Class III. Class II town highways are those selected as the most important highways in each town as determined by the Selectboard and approved by the State Transportation Board. Shelburne has 25.1 miles of Class II town highways. Class III highways are all traveled town highways other than Class I or II highways. Shelburne currently has 25.1 miles of Class III road.

Shelburne annually spends several hundred thousand dollars to maintain its town highways. Much of this money is raised from property taxes with the remainder coming from State funds. The Vermont Agency of Transportation annually allocates funds that are dedicated to the town highway program and divided based upon Class I, II, and III town road mileage. The money projected to be received from the State in Fiscal Year 2011-12 (\$137,083) would constitute approximately 13-- percent of the budgeted Town highway expenditures for that year (\$1,028,023).

a. Route 7

As the main arterial road in Shelburne, Route 7 provides for north/south movement of the Town's residents, neighboring towns and passers-through, and carries the highest volume of traffic of any Shelburne road. (Indeed, portions of Route 7 north of Shelburne are among the most heavily traveled roads of their type in the state.) According to the Agency of Transportation, traffic volumes on Route 7 in 2008 ranged from 14,900 vehicles per day at the Shelburne/ Charlotte town line (up from 11,700 in 2002) to 19,880 vehicles per day near the South Burlington/Shelburne Town line (down from 22,700 in 2002). According to studies cited in previous Town Plans, during an average twenty four hour period the "through traffic" on Route 7 in Shelburne is approximately 37 percent of all vehicles, with the rest having origins and destinations within the corridor. (As more development takes place south of Shelburne in communities such as Charlotte, Ferrisburgh, and Vergennes, the amount of through traffic is bound to increase.)

Highway sufficiency ratings describe the 1) safety, 2) service, and 3) level of maintenance found at specific locations along a transportation network. They represent a broader rating of performance than do levels of service (LOS), which in general only measure congestion and delay. Sufficiency ratings include "bad" (0-40 points), "poor" (40-60 points), "fair" (60-80 points), and "good" (80-100 points). According to the 2008 Sufficiency Rating Report, the section of Route 7 within and south of Shelburne village was rated Poor. Meanwhile the section north of the Village earned a fair rating .

Because of the highway's location and high utility, residents, passers-through, and visitors develop an image of Shelburne while traveling Route 7. It provides the entranceways to the community and a vantage point of the Town's character, as such it is important that adjoining land uses enhance the nature of the road corridor while taking advantage of the access. Route 7 abuts and provides access to a wide range of land uses including commercial, industrial, cultural, residential, and agricultural uses. It plays a highly important role on a local, regional and statewide basis not only in the movement of people and goods but as the main access to Shelburne's growing commercial district. The safety, efficiency and aesthetics of Route 7, therefore, play an enormous role in the economic vitality of the community, a fact that is underscored by the Town's efforts to plan for the future of the area by conducting a highly interactive "Design Charrette." Some of the key findings of the Charrette and follow up Pilot project are presented in the box below

Over the past two decades, Route 7 has experienced a slow and generally steady growth in traffic. See Figure 3. Periods of slower growth typically coincide with economic downturns and/or construction disruptions. According to a Survey conducted in 2003, Shelburne residents identified the level of traffic as one of the highest priority problems the Town should address. In conjunction with the Chittenden County Metropolitan Planning Organization (CCMPO) and Agency of Transportation, the Shelburne Selectboard supported the development of a plan to widen Route 7 from the LaPlatte River Bridge to South Burlington,

thereby alleviating some of the previously existing traffic problems and allowing for alternative forms of transportation with the provision of sidewalks and bike lanes. This project improved traffic flow for this section of highway and had a significant impact on the appearance and character of the highway corridor due to the construction of a median and installation landscaping. However, construction of the median was not well received by owners of commercial property along the corridor, many of whom experienced decreased business activity during construction. Some of these owners attribute continuing economic underperformance to the highway's design.

According to at least one analysis by the CCMPO, these changes will, over time, also induce additional traffic and use of the highway. If the amount of induced traffic is high, the redesign of the highway could have significant implications for quality of life in Shelburne village. As noted in the recent "scoping" study completed by the engineering firm Stantec, traffic conditions in Shelburne village during peak hours have worsened since the highway was reconstructed. Stantec's report notes that traffic delays at the intersection of US 7-Falls Road-Harbor Road will increase without intersection improvements. Stantec's report recommends as a preferred alternative a modest set of improvements that should help traffic move at acceptable rates for the next several years. These improvements have yet to be budgeted for or programmed. Although there have been studies in the past of potential bypass locations, it is unlikely that this alternative will be feasible. As traffic, particularly truck traffic, increases it will be important to the long term viability of the Village to implement changes which either reduce traffic or mitigate its impacts.

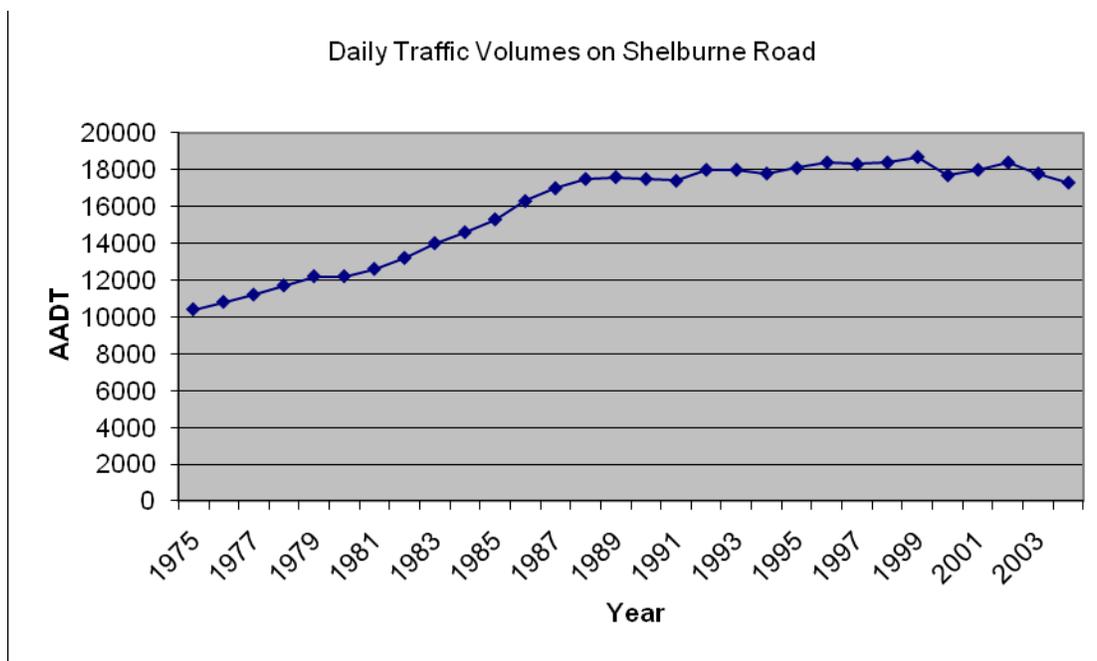


Figure 3. Route 7 Traffic Volumes in Shelburne Village

(Station D002 , located south of Bay Road,
Source: Vermont Agency of Transportation via CCMPO

The Shelburne Road-Falls Road-Harbor Road intersection is one of the most critical elements of the Route 7 corridor. The traffic performance at this intersection is described further below.

Route 7 Design Charrette:

On October 17, 18, and 19 of 2011, Shelburne hosted a group of design and planning experts from across the country. The group, which was assembled by the American Institute of Architects (AIA), came to Shelburne as part of the AIA’s Sustainable Design Assessment Team (SDAT) program. The team engaged in numerous meetings with residents, business owners, and others with an interest in the Shelburne Road corridor. The charge given to the group was to help Shelburne establish a vision for the corridor that acknowledges a diverse range of community needs. Key recommendations made by the group were included in an 82 page report released in early 2012.

The team was led by architect and planner Harris Steinberg, FAIA, founding director of the University of Pennsylvania’s “PennPraxis” community design program. Recommendations contained in the report are organized in five key areas: economic development opportunities, natural systems, placemaking, mobility, and character and form. Several of the key implementation actions identified by the project team seek to bolster local economic prospects, improve the appearance of development in the corridor, and increase housing opportunities. The list of specific actions includes recommendations to:

- Take ownership of north route 7.
- Create a corridor-wide business improvement district.
- Capture tourist dollars through meals and room tax for community- and marketing.
- Zoning reforms for performance/form based codes.
- Create development standards and guidelines.
- Establish north Route 7 project design review.
- Design Guidelines.

Route 7 Pilot Project:

As a follow-up to the Design Charrette, the Town engaged consultants Bill and Mary Dennis to complete a short term “pilot project” building on the work of the SDAT team. The geographic focus of the project was a roughly half mile corridor along Shelburne Road centered on the intersection of Shelburne Road, Bay Road, and Executive Drive. Key “deliverables” of the project included images that illustrate different development opportunities in the study area as well as such images that contrasted development possible under traditional zoning with those possible under “form based” zoning.

The primary recommendation contained in the Pilot project report is that the Town complete a three stage process involving:

- Thorough documentation of the Town’s character.
- Translation of that documentation into a Community Vision Plan.
- Codification of the Vision Plan through some type of Form Based Code, be it as part of the existing code (including PUD regulations), a new code, or as a ‘floating code’.

b. Route 116

Route 116 is a secondary north-south state route of which 1.2 miles are located in Shelburne. In 2008, a portion of the Shelburne segment of Route 116 carried 6100 vehicles per day (AADT). At 24 feet wide, with two foot shoulders, the section of Route 116 within Shelburne barely qualifies for a sufficiency rating of Fair, according to the 2008 Sufficiency Rating Report. .

In the future, the significance of the Route 116 corridor could take on added importance should plans for an interstate interchange in South Burlington (“Exit 12B”) be advanced. Construction of such an interchange could have a significant impact on land use in the Town of Shelburne.

c. Local Highways

Key local highways range from village streets to rural byways. North-south highways include Dorset Street, Spear Street, Falls Road, and sections of Harbor Road. East-west highways include, Bostwick Road, Marsett Road/Irish Hill Road/Pond Road, Bay Road, Webster Road, Bishop Road, and Barstow Road.

According to data presented in a “Paved Road Condition Survey” completed for the Town in 2002, the majority of Town-administered highways are either 24 feet or 30 feet in width. According to data compiled by the Chittenden County Metropolitan Planning Organization for the years 2007-2010, traffic volumes on local roads range from a handful of vehicles per day to 500 per day on Pond Road, to 3400 daily on Cheesefactory Road, 3300 on Dorset Street , and up to 5600 on Spear Street. See the Daily Traffic Volume Map (Map 20). As a rule of thumb, roughly 10 percent of all trips on a highway take place in the peak hour. The theoretical capacity of a two lane highway is roughly 2400-2800 trips per hour. However, depending on setting, vehicle delays may be considered unacceptable at much lower levels.

d. Ancient roads

“Ancient roads” is the term used by some to describe historic rights-of-way or highways that are no longer used but may continue in public ownership. Legislation (e.g., Act 178 of 2006) was passed in the mid 2000s to spell out procedures by which roads that are no longer discernable on the land are to be incorporated into the municipal highway system or discontinued. Shelburne chose not to pursue addition of any such roads to the highway system, instead opting to conduct a mass-discontinuance, foregoing any claim to such roads in the future.

e. Scenic byways

Shelburne is home to a portion of the Lake Champlain Scenic Byway, Scenic byways are overseen by the National Scenic Byways Program. According to the organization’s website,

The National Scenic Byways Program is part of the U.S. Department of Transportation, Federal Highway Administration. The program is a grass-roots collaborative effort established to help recognize, preserve and enhance selected roads throughout the United States. Since 1992, the National Scenic Byways Program has funded 2,926 projects for state and nationally designated byway routes in 50 states, Puerto Rico and the District of Columbia. The U.S. Secretary of Transportation recognizes certain roads as All-American Roads or National Scenic Byways based on one or more archeological, cultural, historic, natural, recreational and scenic qualities.

In Shelburne, the Lake Champlain Scenic Byway is located along US Route 7. The local byway organization helps promote the region to visitors from outside the area. It also helps communities and organizations gain access to federal scenic byway funds for purposes consistent with the Byway program’s objectives.

f. Traffic growth

The amount of traffic on local highways has been growing noticeably over the last decade. According to data compiled by the CCMPO, the volumes in six locations increased more than _ percent over ten years. The largest increases in volume took place along _, as well as along _between _. East-west traffic levels also appear to be rising significantly, as a __ percent increase was observed on Harbor Road, while a __ percent increase was observed on Irish Hill Road, and a 38 percent increase was observed on Pond Road.

g. Pavement Condition

According to the Paved Road Condition Survey (2002), a small amount of the Town’s highway system (approximately one half mile) is in a condition (score < 30) that suggests the need for “reconstruction by means of recycling or a complete reconstruction.” Another 27 miles is in a condition (with scores between 30 and 80) warranting “pavement overlays of various degrees.” The remaining roadway miles require only normal maintenance operations such as ditch cleaning and brush cutting.

h. Level of Service

There are many ways to measure transportation system performance, each reflecting a particular perspective concerning the who, what, where, how, when and why of transportation. Different methods favor different

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types of transportation users and modes, different land use patterns, and different solutions to transportation problems.

Level of service (LOS) is a qualitative measure describing operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, traffic interruption, freedom to maneuver, safety, driving comfort and convenience, and delays. LOS is rated A through F, like grades in school, although different calculations are used for different types of transportation facilities. There are no universal standards indicating which levels of service are acceptable and which are not. However, previous Plans for the Town have indicated that LOS C and D are acceptable and LOS E and F are considered unacceptable.

A limited number of LOS calculations have been performed for roadways and intersections in Shelburne recent years.

According to analyses prepared by the firm Smart Mobility as part of the Harrington Village development application, in 2012 the US 7/Harbor Road/Falls Road intersection operated with an overall level of service of D. The intersection is anticipated to function at the same level of service in 2017, with or without construction of the Harrington Village project. Individual approaches to the intersection will also function at LOS D, except for the Harbor Road approach, which is expected to operate at LOS E. In 2012, a separate study of the intersection was initiated by the consulting firm Stantec. Stantec's study found that

Under existing design hour conditions, US Route 7 / Falls Road / Harbor Road intersection is operating at Level of Service E. Additionally, traffic volumes are approaching the theoretical carrying capacity of the intersection. (The calculated volume-to-capacity ratios exceed 90 percent.) On US Route 7, the southbound through movements operating in conflict with northbound left turn movements experience the longer delays during both peak hours.

According to Stantec's analysis, conditions at the intersection will worsen without improvements. More specifically, the report notes

[E]xisting traffic congestion levels are expected to worsen at the US Route 7 / Falls Road / Harbor Road intersection as travel demands increase. Peak hour travel demands are expected to exceed the intersection capacity by 12 percent during the AM peak hour in 2032 and by 21 percent during the PM peak hour. Long delays and long vehicle queues would be expected on all intersection approaches under these conditions.

i. High Accident (Crash) Locations

A "High Accident Location" is one where the number of accidents occurring exceeds a critical rate. Accident data for specific road segments or intersections are usually compared on the basis of accidents per 100 million 10 vehicle-miles of travel. This factor adjusts the number of accidents to reflect the average travel demand at the location in question, so the frequency of accidents at various locations can be compared more equitably. There are no high accident locations identified in Shelburne.

j. Driving Patterns

According to Census Data for 2000, roughly nine out of ten Shelburne residents drive or carpool to work; this level of auto-based commuting is slightly higher than the level displayed in the County as a whole. A small number of residents (four out of one hundred) walk or bicycle to work; even fewer (fewer than one out of one hundred) use public transportation for work purposes. Given significant investments in bicycle lanes

and sidewalk infrastructure, Census data for 2010 are expected to indicate increases in the non –motorized commuting.

Among Shelburne-based commuters, most work-related trips appear to be made to Burlington, Shelburne, or South Burlington. Among persons working in Shelburne, most work trips appear to originate in Shelburne, Burlington, Charlotte, or South Burlington.

Shelburne residents travel considerable distances by car daily. According to results from the 2010 Chittenden County Regional Transportation Model maintained by the CCRPC, the amount of driving for all trip purposes, including work trips as well as trips for shopping, school, and recreation, averages nearly 20 miles per person per day for one-way trips beginning or ending at home and another 13 miles per person per day for trips not beginning or ending at home. Also according to the model, the number of daily vehicle trips averages about 6 one-way trips per person. Of these, 60% are home-based (i.e., begin or end at home), while the remaining 40% begin and end away from home.

Table 15_. Journey-to-Work Travel Characteristics, 2000

Transportation Characteristic	Shelburne	Chittenden County
Percent Population, which Drive Alone to Work, 2000	79.6%	76.09%
Percent Population, which Carpooled to Work, 2000	9.63%	10.77%
Percent Population, using Public Transportation to Work, 2000	0.35%	1.49%
Percent Population, which Motorcycle to Work, 2000	0.0%	0.05%
Percent Population, which Bike to Work, 2000	0.26%	0.53%
Percent Population, Walking to Work, 2000	3.75%	6.46%
Percent Population, using Other means to Work, 2000	0.0%	0.44%
Percent Population, Worked at Home, 2000	6.43%	4.17%

Where Shelburne Residents Work	Percent	Where People Who Work in Shelburne Live	Percent
Burlington	29%	Shelburne	32%
Shelburne	27%	Burlington	14%
South Burlington	16%	Charlotte	6%
Williston	7%	South Burlington	5%
Essex	5%	Colchester	4%
Colchester	4%	Essex	4%
Vergennes	2%	Hinesburg	4%
Hinesburg	1%	Milton	3%
Middlebury	1%	Ferrisburg	3%
Winooski	1%	Winooski	2%
Charlotte	1%	Williston	2%
Berlin	1%	Vergennes	2%
Other locations	5%	Other Towns	20%

Source: US Census, 2000

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i. Access management

As described by the Transportation Research Board (TRB), “access management programs seek to limit and consolidate access along major roadways, while promoting a supporting street system and unified access and circulation systems for development. The result is a roadway that functions safely and efficiently for its useful life, and a more attractive corridor.” Access management is sometimes a controversial approach to transportation management, since it can affect the level of direct access enjoyed by individual properties. Again as described by the TRB,

Without access management, the function and character of major roadway corridors can deteriorate rapidly. Failure to manage access is associated with the following adverse social, economic, and environmental impacts:

- * An increase in vehicular crashes,
- * More collisions involving pedestrians and cyclists,
- * Accelerated reduction in roadway efficiency,
- * Unsightly commercial strip development,
- * Degradation of scenic landscapes,
- * More cut-through traffic in residential areas due to overburdened arterials,
- * Homes and businesses adversely impacted by a continuous cycle of widening roads, and
- * Increased commute times, fuel consumption, and vehicular emissions as numerous driveways and traffic signals intensify congestion and delays along major roads.

Not only is this costly for government agencies and the public, but it also adversely affects corridor businesses. Closely spaced and poorly designed driveways make it more difficult for customers to enter and exit businesses safely. Access to corner businesses may be blocked by queuing traffic. Customers begin to patronize businesses with safer, more convenient access and avoid businesses in areas of poor access design. Gradually the older developed areas begin to deteriorate due to access and aesthetic problems, and investment moves to newer better-managed corridors.

A number of access management principles were incorporated into the design of the Shelburne Road reconstruction project. However, access management principles are also relevant to other, less heavily traveled highways in the Town. A comprehensive, Town-wide access management program could potentially involve the following elements:

1. Classifying roadways into a logical hierarchy according to function,
2. Planning, designing, and maintaining roadway systems based on functional classification and road geometry,
3. Defining acceptable levels of access for each class of roadway to preserve its function, including criteria for the spacing of signalized and unsignalized access points,
4. Applying appropriate geometric design criteria and traffic engineering analysis to each allowable access point, and
5. Establishing policies, regulations, and permitting procedures to carry out and support the program.

j Local Bridges

Bridges are important components of the transportation system. They can be costly to repair, and, if they must be removed from service to complete repairs, disruptions can occur. Assessments of the structural

characteristics of bridges typically occurs every two years. According to assessments performed in 2002, the most deficient bridges in the Town included the Laplatte River bridge on Bay Road, one mile from the junction with US 7, and the Bostwick Road bridge over the Vermont Railway (recently reconstructed). A state assessment of the Vermont Railroad bridge over Bay Road, which is not included in the sufficiency list, identifies cracking and spalling in the substructure in 2002. The assessment recommended that a more in-depth inspection be completed by Vermont Railway.

Among other local bridges, an assessment has been performed for the LaPlatte River bridge on Falls Road. The assessment suggests that the bridge is in relatively good condition. According to the Director of the Highway Department, a locally owned structure that does deserve attention is the one located on Harbor Road near the Green Mountain Power substation.

2. Public Transportation

In most Vermont communities, there are at least some residents who do not own automobiles or who do not have access to them at all times. To meet the mobility needs of these persons, some form of transit is usually necessary. Shelburne does not operate a local transit system. Instead, Shelburne is served by the Chittenden County Transportation Authority (CCTA). CCTA has been providing transit services in the region since 1974. CCTA operates scheduled transit routes throughout the Greater Burlington area.

In Shelburne, CCTA offers public transportation from Burlington to the Shelburne Museum six days a week, with 28 daily stops on weekdays and 23 daily stops on Saturdays. Weekday peak period service is also provided to Vermont Teddy Bear. See the Public Transit Routes and Schedules Map (Map 21). Vermont Teddy Bear also contracts with CCTA for the additional service during certain times of the year. Shelburne is not a scheduled stop on CCTA's Middlebury-to-Burlington Link Express service.

According to staff of CCTA, the Shelburne Road (#6) bus route averages 908 weekday boardings. On average, 117 of these boardings occur in the town of Shelburne. There are two seasonal variations in Shelburne. One results from the fact that during the school year CCTA serves the Waldorf School (ridership volume captured in figures noted above.) The other stems from seasonal employment fluctuations at Vermont Teddy Bear Company (VTBC). According to CCTA, while there is undoubtedly a spike in ridership to VTBC during these times it is relatively minor in terms of overall ridership.

CCTA also provides Americans with Disabilities Act (ADA) door-to-door services for the disabled in Shelburne via the organization Special Services Transportation Agency (SSTA). According to federal law, CCTA must offer paratransit service in conjunction with fixed route service (within a three-quarter mile radius of the CCTA fixed route service area). However, special funding does not exist to support paratransit. To fund some ADA service increases, the Town of Shelburne has requested and CCTA has cut some non-ADA fixed route service to Shelburne.

Overall, the public transit service area and frequencies may be marginal for non-driving segments of the population (low income, seniors and children). Public transit service expansion is most effective when coordinated with overall land use and transportation policies.

According to the Decision Support System analysis for Shelburne, the proximity of housing to transit service is relatively poor. The average distance between dwellings and a located transit stop is approximately 5000 feet, a distance far greater than most people are prepared to walk to reach a transit stop. Without better proximity between housing and transit, significant increases in ridership will be difficult to generate.

3. Parking

Parking is an important but sometimes overlooked transportation planning subject. Some of the more commonly addressed parking issues include parking in support of commercial districts, parking requirements, and commuter parking.

Primary commercial areas within Shelburne include Shelburne village and the Mixed Use district. The *Shelburne Village Transportation Report* prepared by Lamoureux & Dickinson Consulting Engineers in December, 2000, examined a range of parking issues associated with the core of the village area. For properties within the core of the village, that report recommends reducing the amount of parking required under the zoning bylaw, encouraging shared use of existing parking, and, if redevelopment within the village justifies, creation of limited additional parking. The total number of public and private parking spaces in the village area circa 2000 totaled 620. This location of these spaces is presented in the Parking Supply in Village Core and Environs 2000 Map (Map 22). No similar study has been prepared examining parking needs along Shelburne Road north and south of the village. However, parking requirements contained in the Town's zoning regulations have been decreased—at least slightly—in all commercial areas.

Responses to the 2010 Townwide Opinion survey strongly suggest that the amount of parking available in the village center is not perceived to be a problem by the majority of local residents. Some 57 percent of respondents indicate that there are both enough spaces and adequate signage for those spaces. Another 29 percent indicate that the number of spaces is adequate but additional signage is needed to direct users to those spaces. Fewer than one in six respondents (14 percent) believe that parking in the Village is a problem and that additional spaces are needed. Local business owners would note that that people's perceptions of parking can vary depending on when they travel. Some also believe that if parking is not available in close proximity to businesses, customers will not frequent those businesses.

The Planning Commission has given increased attention to the amount of parking Shelburne's zoning regulations require for various types of land uses, and will continue to do so. While some believe that developers of projects in "highway commercial" locations will generally provide more than enough parking onsite to satisfy the parking needs customers, others cite projects where the amount of parking provided may not be adequate. Others also express concern regarding the availability of adequate parking on lots approved for development following issuance of parking waivers and/or approval of shared parking arrangements. These Commissioners suggest that a property's long term parking needs (ie., needs beyond the current use) be considered during the review process. Specific land uses most often associated with discussions of parking requirements include high and low average sale retail, elderly housing, assisted living complexes, and apartments. Where the amount of land available to provide adequate parking is in short supply, arrangements known as shared parking may be appropriate. Shared parking may be applied when land uses have different parking demand patterns and are able to use the same parking spaces/areas throughout the day. Shared parking is most effective when these land uses have significantly different peak parking characteristics that vary by time of day, day of week, and/or season of the year. In these situations, shared parking results in fewer total parking spaces needed when compared to the total number of spaces needed for each land use or business separately. Shelburne's Zoning regulations allow the use of shared parking with the approval of the Development Review Board.

One location where shared parking has been allowed by the Town's review Boards is the Shelburne municipal complex. Parking demands at the municipal center are quite high at times. And, should facilities on the property (such as the Fire Station and/or library) be expanded in the future, those demands could grow

even higher. Alternative conceptual plans for modifying parking on the site have been developed for consideration by the Selectboard. However, owing to uncertainties relating to the expansion of uses on the site and to potential impacts on recreational facilities, the conceptual plans have not been refined. No additional development of the plans is anticipated until questions about possible impacts are resolved.

Commuter parking is another noteworthy planning issue in Shelburne. Improvements associated with the Shelburne Train station have created a de facto, although lightly used, commuter parking lot with some 60 spaces. Other parking spaces along town streets and even some privately owned commercial properties have served similar purposes. A report prepared for the Chittenden County MPO identifies investigation of a formal Park and Ride location in Shelburne village as the 3rd highest priority in the region. According to the draft report, such a facility could be located at either the existing train station or in parking spaces located along Church Street. However, the Planning Commission does not currently support the use of Church Street as a commuter lot.

4. Rail Transportation

The Vermont Railway operates a track through the Town with freight capability. Although considerable amounts of freight travel through Shelburne via rail, direct access to the line has been limited in the last decade. Accommodating traffic originating outside the Town, the line through Shelburne currently carries 1 to 2 trains per day. In late 2010, representatives of the Vermont Railway began signaling their interest in developing a new access point on the rail line north of the LaPlatte River. Such a facility, if constructed, would be exempt from most if not all local land use controls. No passenger rail service currently operates in Shelburne. However, such services have operated in the not-too-distant past and are being contemplated for the future. As noted in previous versions of the Comprehensive Plan, the Champlain Flyer, reportedly the smallest commuter rail service in the United States, was initiated in December 2000 but suspended indefinitely by the State of Vermont in early 2003. The service initially provided multiple inbound and multiple outbound trips each morning and afternoon/evening. Originally conceived to provide alternative means of transportation during the reconstruction of US 7/Shelburne Road, the 15 mile service had stops in Charlotte, Shelburne village (Shelburne Station), South Burlington (Bartlett Bay Road), and downtown Burlington (Union Station). There is no formal plan for resuming this service.

As mentioned in previous versions of the Comprehensive Plan, the State of Vermont has for many years pursued a project known as the “Albany-Bennington-Rutland-Burlington,” or “ABRB” passenger rail project, which would bring Amtrak service to the area. More recently, plans for the project have evolved to consist of two phases, one from Albany to Rutland, and another from the Whitehall, NY, area to Burlington. No timetable for implementing Amtrak service to Burlington, has been set, however. Owing to costs it could be many years before any such service is initiated.

5. Air Transportation

Commercial air transportation is available to Shelburne residents and others in the Chittenden County area via the Burlington International Airport in South Burlington. Major carriers serve all major domestic connections for passengers and freight.

Shelburne is also served by one public use private airport and three smaller private airstrips. The public use airport, which includes a 2500 foot long turf runway, is located at 144 Airpark Road, between Route 7 South of Shelburne village and Mt. Philo Road. Services offered include flight instruction, tie downs, maintenance, and fuel. The airport is not lighted, and noise abatement procedures apply for take-off and departure.

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The small airstrips are only capable of handling small aircraft and there is little likelihood of their becoming part of an air passenger system.

6. Pedestrian/Bicycle Transportation

Bicycle and pedestrian facilities such as sidewalks, crosswalks, and bicycle routes have received increasing amounts of attention in recent years, as recognition of the potential benefits of non-motorized forms of transportation becomes more widespread. Bicycling can provide, among other benefits, an attractive and efficient alternative to the automobile on short local trips. Similarly, walking can reduce traffic congestion and the need for parking facilities. Safe walking facilities can also enhance access to public transit.

a. Bike and Pedestrian Paths Committee

For a number of years, the Bike and Pedestrian Paths Committee (BPPC; formerly known as the Shelburne Neighborhood Paths Committee, or NPC) has played an active role in planning related to walking and bicycling. The BPPC has coordinated the development of path feasibility studies such as the *Longmeadow-Webster Road Conceptual Alignment Analysis*. It has provided comment on similar documents such as the *Champlain Path Feasibility Study*. The BPPC has also reviewed numerous development proposals for walking and bicycling-related impacts, and sponsored educational programs such as the Walkable Communities Workshop.

The BPPC has played a key role in the update of this section of the Town Plan. It has also overseen the update of Shelburne Alternative Transportation Master Plan, participated in the development of the CCMPO Regional Bike/Pedestrian Plan, and investigated the applicability of the *VTrans Bicycle and Pedestrian Manual* as a guideline for the community.

b. Sidewalks and Crosswalks

In communities that contain a major village—such as Shelburne—pedestrian circulation and the adequacy and condition of existing facilities deserve careful consideration. This is because the competitiveness of the local commercial base may well depend upon good pedestrian access. Town regulations currently require that sidewalks be built along public and private streets and roads serving new development located in the Village district. In other districts the Planning Commission may require pedestrian walkways (paved or graveled) to facilitate pedestrian movements to shopping, schools and recreation areas.

Sidewalks are located along at least one side of the street in a significant portion of Shelburne village. Half a dozen marked crosswalks complement these facilities. In the late 1990s, the Town created a sidewalk committee and charged it with preparing a Capital Improvement Program for sidewalks. Construction of the sidewalks identified in the capital improvement program was initiated using local funds. In 1999, the Town received an \$80,000 Enhancement Grant from the Vermont Agency of Transportation for installation of sidewalks along portions of Shelburne Road within the village.

More recently, sidewalks have been constructed at Boulder Hill and Ockert Lane in connection with the residential development of those areas. As part of the Route 7 widening project, bike lanes and sidewalks have been constructed on both sides of the road from South Burlington to Webster Road. In the Spring of 2007, using funding from a regional sidewalk grant program construction of a sidewalk from the LaPlatte River Bridge to the intersection of Falls Road and Shelburne Road was completed. Sidewalks have also been

constructed along Church Street (2007), Mt Philo Road (2010), and portions of Harbor Road (2008 and 2011).

Despite the recent surge in the construction of sidewalks in the Town, however, the system of sidewalks and crosswalks has been deemed to have gaps. As a follow up to the Walkable Communities workshop sponsored by the Chittenden County Metropolitan Planning Organization, the BPPC identified several areas in the Town where the sidewalk/crosswalk system is deficient. It is the position of the BPPC that deficient areas include locations where crosswalks and pedestrian signals are missing or lacking at heavily traveled intersections. Deficiencies also include densely settled areas that sidewalks do not serve or where existing sidewalks do not connect. The BPCC, as part of its work, has also identified path and bikeway priorities. Goals of the BPCC include walkability, bike ability, access to neighborhoods, safe streets, and developing plans for sidewalks, crosswalks, and such. See also the Priority Paths, Trails, and Lanes Map (Map 23).

c. **Bicycle and Multi-Use Facilities**

Bicycle facilities—and related multi-use facilities that are used by bicyclists as well as others—take several forms, including shared use paths, on-road bicycle facilities, and recreation paths/rail trails. Shared use paths typically provide for travel on an improved right of way completely separated from any street or highway. By definition, shared use paths are used by bicyclists, pedestrians, rollerbladers, and other user groups. On-road bicycle facilities include bike lanes, which provide a striped lane for one-way travel on a street or highway, paved shoulders, and wide curb lanes. They also include bicycle routes, which provide for shared use with motor vehicle traffic and are identified by signing. Rail-trails use inactive railroad corridors, while rail-with-trails facilities share a corridor with an active railway.

Shared Use Paths

Shared use paths in the Town include improved facilities such the recently renovated Ti Haul Road path. This path now serves as a key link in a nascent local path system. The Town actively pursues the creation of shared use paths, both as a part of new developments and as separate, publicly-supported projects. As part of the development review process, the Planning Commission requests that developers consider easements within new subdivisions which would provide links in a Townwide path system. It is long-established policy that priorities for linkages include easements that help:

- connect Shelburne with surrounding towns;
- connect key locations within the Town, such as the Village, the beach and Shelburne Pond; and
- connect neighborhoods to main paths.

A key example of a shared use path created as part of a residential development is the facility recently constructed as part of the Boulder Hill development. The BPPC has been researching shared use paths facilities as part of the update of the Town's Alternative Transportation Master Plan. Other shared use path links that are recommended in that plan include significant portions of the Longmeadow-Webster Road path as well as a future off-road connection between Shelburne village and the Town Beach. See Map 24.

On-Road bicycle facilities

The road network in Shelburne, primarily considered a system for vehicles, also serves as a network for non-motorized transportation. Previous Town Plans have observed that most of the roads in Shelburne were unsafe for pedestrian or cyclist traffic due to the lack of adequate shoulders and designated lanes for bikers

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and pedestrians. However, in recent years, areas served by bike lanes have grown. Examples of such areas include sections of Spear Street, which have an at-grade designated “bikelane,” as well as the reconstructed portions of Route 7 north of the LaPlatte River bridge. A paving project currently being planned for Route 7 south of the bridge is expected to extend bicycle lanes as far south as the municipal boundary shared with Charlotte . . .

Recent and anticipated improvements notwithstanding, other than lightly traveled roads that are suitable for use by cyclists, the Town currently lacks on-road bicycling facilities. A portion of the Champlain Bikeway does pass through the the Village and the Town on Falls Road, Bostwick Road, Irish Hill Road, and Spear Street. Although not indicated by lane striping or other markings, some other highways in the Town appear capable of accommodating paved shoulders and, possibly, bicycle lanes. Table 16 above recommends that, in the future, on-road facilities be developed in several locations.

Recreation and Rail-Trails

Recreation trails in Shelburne include facilities such as primitive trails within the Laplatte Nature Park and some of those within Shelburne Bay Park. There are no rail-trails within the community, although a feasibility study has recently been completed in connection with a Rail-with-Trail project along the Vermont Railway corridor. Table 16 contains recommendations for new or improved recreation trails in a number of locations, including LaPlatte Nature Park and Shelburne Bay Park. The development of such trails is supported by the Comprehensive Plan where they are appropriate and would not cause significant environmental impacts.

Standard for Construction of Facilities

In late 2002, the Vermont Agency of Transportation released the *Vermont Pedestrian and Bicycle Facility Planning and Design Manual*. The design guidance provided in the manual is intended to assist the state, municipalities, design professionals, private developers, and others in planning, designing, constructing and maintaining pedestrian and bicycle facilities in a variety of settings throughout Vermont. The recommendations contained in the *Manual* or future updates to this manual should be observed in the course of planning and designing transportation facilities in Shelburne.

Bicycle Friendly Communities Designation

In 2012, under the guidance of the BPPC, the Town sought designation as a Bicycle Friendly Community (a designation program conducted by the League of American Bicyclists). Shelburne’s application received an Honorable Mention under the program, which provides incentives, hands-on assistance, and award recognition for communities that actively support bicycling. Shelburne was recognized by the League for its growing commitment to improving bicycling safety and opportunities in the community.

B. TRANSPORTATION ISSUES AND IMPLICATIONS

Shelburne is a rural-suburban community on the fringe of a growing urban area. Given its location, and because it is bisected by a major artery, transportation will continue to be a significant planning issue. In the future, traffic volumes on transportation routes may grow to levels considered unacceptable to some residents. Such increases also may be associated with decreases in traffic safety (for vehicles as well as bicyclists and pedestrians).

Policies will need to be developed to address how the community should respond to these conditions. Options include developing plans to increase capacity in certain locations, making improvements to specifically address safety, and implementing planning policies that influence land use and travel demand. Regarding the link between land use and transportation, it is generally recognized that increases in traffic can be slowed by encouraging the mixing of land uses rather than separation of land uses.

Because new development very often generates traffic, the Town will need to consider whether or not major new development proposals should be conditioned or denied in order to minimize traffic growth problems. Because the cost of driving is subsidized and hidden in the municipal property tax—which pays for Town road maintenance, policing and safety measures—the appropriateness of impact fees might also warrant discussion.

Traffic congestion can also be relieved, at least partially, by creating alternate routes for vehicles to follow. (Instead of one main road, a grid or network of streets can spread traffic out; by providing alternate routes, traffic flow can be more balanced.) However, because transportation is not limited to automobiles, the Town needs to develop an integrated plan for non-motorized transportation that links the village and outlying neighborhoods via sidewalks, bikeways, paths and trails.

According to the 2010 opinion survey, 39 percent of respondents believe increasing connections between neighborhoods should be required of developers. Another 26 percent feel that increasing the connections between neighborhoods should occur only within the village center and surrounding designated growth area. The rest question the value of connections. Nearly 70 percent of survey respondents believe that design regulations similar to those existing in Shelburne village should be established in the area north of Shelburne village. Another 13 percent of survey respondents are unsure about implementing design regulations, and neither for or against the idea. Roughly one in eight oppose the idea. When asked if design review regulations could help set Shelburne apart from neighboring communities, almost two thirds of responded positively.

VIII. COMMUNITY FACILITIES, UTILITIES AND SERVICES

Land use planning and facility/utility/services planning are linked and interdependent. Planning for growth should be conducted to ensure that: a) the Town's financial ability to provide necessary services and facilities is not exceeded, b) capital facilities plans are sufficient to accommodate projected growth, and c) capital facilities plans are consistent with policies for locating future growth. As part of the long range planning process, communities should evaluate the location of anticipated growth and the public infrastructure necessary to support it.

While the land use plan describes the location and intensity of growth, the community facilities, utilities, and services plan must describe existing facilities and services and list new and upgraded facilities that will be required to provide the services the community desires over the next 10 to 20 years.

Public facility crises can occur when communities fail to coordinate land development and public facilities, such as when residential development is so rapid that it overwhelms a community's schools, libraries, and recreation programs.

A. PROFILE AND ANALYSIS

1. Town Government

Shelburne's Town government provides a wide array of services to the community: town management, property assessment, tax collecting, record keeping, community planning, budgeting and fiscal management, water, sewer & road utilities, recreation and other administrative services. The Town staff is comprised of 40 full time and approximately 10 regular part-time employees. During the summer months the number of staff increases to approximately 65 employees. The Town also has approximately 60 volunteers who are members of the Shelburne Fire and Shelburne Rescue Departments and are covered by the Town's insurance policies.

Shelburne has a Selectboard-Town Manager form of government as established by the Town's Charter. The Selectboard is the Town's legislative body and, therefore, is entrusted with the adoption of regulations and policies for the community. In addition to the Selectboard, the Town is served by a Planning Commission, Zoning Board of Adjustment, Natural Resources/Conservation Committee, Historic Preservation and Design Review Commission, Water Commission, Bike and Pedestrian Paths Committee, Recreation Committee, and Board of Civil Authority, among others.

2. Recreation and Parks

a. Recreation Department.

Shelburne has an active Recreation Department providing programs and facilities for the benefit of Shelburne residents. The department is headed by the Recreation Director, who oversees a small staff of part time and seasonal employees. A citizen recreation Committee helps establish policy and direction for the department and assists in organizing league play.

Community Facilities, Utilities, and Services

The department works in cooperation with other entities such as the Shelburne Craft School, theatrical groups, private recreation providers, the public schools and a host of skilled individuals to offer a wide variety of recreational, cultural, and arts and craft programs. The department oversees an after-school athletic program which in 2013 served over 350 children in the soccer program, approximately 150 in youth basketball, roughly 250 in baseball (in conjunction with Shelburne Little league), 80-100 in dog obedience, and about 100 in after-school skiing, and approximately 190 in lacrosse. Another 1000-plus people are served by the department's summer concerts. Summer camps organized by the department circa 2013 served 300 plus children, while adult recreation leagues typically serve more than 75 individuals. Many of these extremely popular programs are dependent on extensive adult volunteer participation for their success. Many of the programs and facilities are also open to non-residents, for an extra fee.

b. Private Recreation.

Privately-sponsored recreation opportunities in the Town include the various athletic programs run by the Field House, sailing (Shelburne Yacht Club), arts and crafts (Shelburne Craft School), museums (Shelburne Farms and Shelburne Museum), and other events (Shelburne Athletic Club). The community is also home to the Kwiniaska golf course.

c. Public and Open Lands.

The Town of Shelburne is fortunate to have a number of publicly owned parcels available for recreation. Some of these lands have a dual purpose as aesthetically important open space and natural resource conservation land. The major publicly owned recreation lands are Davis Park, LaPlatte Nature Park, Shelburne Town Beach, Shelburne Bay Park, Shelburne Ballfield, and the lands associated with the Village and Community School. The Town owns smaller parcels of land used as neighborhood parks. Some of these lands are developed as recreation areas, while some are not but will be in the future as demand and financial resources dictate.

Open lands owned by the Town or conservation groups are shown on the Public and Conserved Lands Map in this Plan. (Map 11). Many of these lands play an important role in the provision of recreation, as well as open space, for Shelburne residents and visitors to the Town.

d. Trails and Paths.

Many trails and paths traverse the town, providing opportunities for hiking, cross country skiing, snow shoeing, and snowmobiling. Of note are the recreation paths at Shelburne Bay Park and along the so-called "Ti Haul Road". Funded by a Land and Water Conservation Fund Grant and Town monies, the Shelburne Bay Park trail begins at the bottom of Shelburne Bay and continues for 1.5 miles around Allen Hill and along Lake Champlain until connecting to Harbor Road. The Ti Haul Road path, which was rehabilitated by the Town in 2003, extends south from Bay Road to Harbor Road.

As noted in the Transportation Chapter of the Plan, the Shelburne Bike and Pedestrian Paths Committee helps plan and advance path, sidewalk, crosswalk, and trail projects through the creation of a Townwide priorities map. This map includes proposals to create a network linking neighborhoods, parks, natural areas, Lake Champlain, the Village, services and job centers, and provide recreational and alternative transportation opportunities. The map also recognizes the need to create links to adjoining towns.

e. Existing Needs.

Although Shelburne boasts many recreation opportunities, certain recreation-related needs and deficiencies have been identified. With the completion of the multi-purpose fields and baseball field off of Harbor Road and the replacement of the ice rink at Hullcrest Park (as part of the stormwater project in that location) the bulk of identified recreation deficiencies relate to the Shelburne Town Beach and Davis Park.

According to the Town Recreation Director, the playground at the Town Beach is aging and in need of an upgrade to ADA Accessible standards. Other problem areas include the driveway that leads down to the boat ramp. The Bath House Facility at the Beach property is currently in decent condition. However, as noted in the previous version of the Plan, the current facility is on a septic tank that the Sewer department has to empty between 1 and 3 times a week during the beach season, depending on usage.

Improvements made at the Town Beach property in recent years have included repair of the seawall and addition of a Toddler Playground. More recently, other repairs to the property, such as replacement of the south stairs, were required due to the record flooding experienced in the Spring of 2011.

At Davis Park, the playground is aging and not up to ADA standards. Other needs identified at Davis Park include an adequate ice rink.

f. Future Needs/Programs.

As the population of Shelburne grows, the provision of appropriate recreation services and facilities will need keep reasonable pace with new demands. According to Town Staff, due to lack of field space, the Town currently does not offer teen or adult leagues for outdoor sports. The potential exists to offer these programs in the future if new and/or upgraded facilities become available. In addition, in the event parking demand at the municipal complex grows to the point where additional spaces are required, a need could develop for additional field space for youth baseball activities. The other Volume of this plan includes language addressing implementation of future recreation facilities and services.

3. Library

a. Purpose.

The purpose of the Pierson Library is to provide citizens with access to the educational, cultural, recreational and research benefits of a free public library. Residents, anyone who pays business or property taxes to the Town of Shelburne, and anyone who rents property in Shelburne is eligible to register for a library card with full privileges. Shelburne also participates in Chittenden County HomeCard system. Residents of towns participating in that system may borrow from the Pierson Library with their town's library cards. (Pierson Library is most often visited by residents of neighboring Charlotte and South Burlington.) Vermont residents of towns outside of Shelburne and the Home Card system may apply for a nonresident card with limited privileges from the Pierson Library for \$35 per year.

Community Facilities, Utilities, and Services

b. Hours of Operation, Circulation, and Staffing.

The Pierson Library is currently open 47.5 hours per week, including Saturdays and two weekday evenings. There are 4,100 active members. Circulation for the fiscal year 2009-2010 was 68,961 items, up from 44,203 items in 2002-2003. Staff includes one full-time library director, two full-time assistants, and five part-time staff who provide other support. There are twenty regular volunteers and several more special project volunteers. There is an average of forty-two weekly volunteer hours.

c. Holdings and Computer Technology.

The holdings of the Pierson Library consist of about 32,698 items, including books, DVDs, large print books and audiobooks. The library holds 114 newspaper and magazine titles. Five computers are available to the public for word processing, Internet access and access to several online databases. These databases along with access to downloadable e-audiobooks and e-books are available 24/7 through the library's website at www.PiersonLibrary.org. The library is also active in social media at www.Facebook.com/PiersonLibrary. There are also two computers dedicated to accessing the library's online catalog.. The Pierson Library has a small collection of materials on the history of the area and its families as well as archives of the *Shelburne News* and some of its precursors available in microfilm and as bound originals.

d. Programs.

Programs include two weekly story times for preschoolers, a monthly book discussion group for adults, and special events are scheduled regularly for children and adults. The special events may include lectures, author visits, music, dramatics, computer training, and educational programs and occur on an average of two per month. Volunteers make deliveries and pickups of library materials to homebound residents. Pierson Library provides federal and state tax forms and is a site for volunteers assisting in tax preparation.

e. Existing Facilities and Future Needs.

During December of 2001 the Pierson Library moved into the former town offices at 5376 Shelburne Road. This move allowed the long cramped library to nearly double to 6400 square feet and to be attached to the Old Town Hall where its events are usually held. It was expected that this space would adequately serve the town for up to 10 years. . In 2010, the Library embarked on a new space needs study, soliciting current and future needs from the community and library staff. The study resulted in a Request for Proposals (RFP) that saw the Library retain the services of Maclay Architects of Warren, VT, to develop schematic designs for an expanded and renovated library. This project is ongoing and is being done in conjunction with the current Town Center project.

4. Police

a. Department.

The Shelburne Police Department, established in 1967, provides 24 hour safety and protection services to Shelburne citizens. The duties of the Police Department cover a broad range, from house checks, traffic control, accident and other emergency responses, to the handling of felonious crimes. The department assists neighboring town's police departments and the State Police in a mutual aid effort. The communications center of the police department provides 9-1-1 call-taking services for 18 communities and provides dispatching services for 23 police, fire and EMS agencies in southern Chittenden and northern Addison County.

The Police Department as of 2013 has a staff of 13 full time officers, including the police chief, sergeant, corporals, and patrol officers. The department also employs eleven part-time officers, an administrative assistant, seven full-time dispatchers and seven part-time dispatchers.

b. Facilities and vehicles.

Housed in the ground floor of the main building in the Shelburne municipal center complex, Shelburne's police department is centrally located. The department occupies approximately 8,600 square feet of space and includes six offices, two holding cells, a meeting/conference room, two interrogation rooms, the dispatch center, two safe and evidence rooms, and a sally port. Police facilities were last renovated extensively in 2001. There are no significant facility deficiencies at the present time.

The department maintains five primary police vehicles, a four wheel drive police truck with scales, and two unmarked cruisers. The force also maintains a snowmobile, utility trailer, and speed cart/speed measuring device.

c. Existing Demands/Level of Service.

As part of a larger trend in the Greater Burlington Metropolitan Area, the overall crime rate in Shelburne has increased in recent years. Crime rates in the Town do continue to remain below those experienced in the County as a whole, however. Based on Department records, average response time for the police department is 6.3 minutes. According to the Department, response time has grown over the past five years, as officers manage the demands of increased calls for service.

Information detailing types of crimes committed in Shelburne is presented in Table 16 below. Statistics included in this Table are drawn from the Vermont Crime Report, which assigns crimes to two main categories. So-called "Group A" crimes include violent offenses such as criminal homicide, forcible rape, robbery, aggravated assault, burglary, larceny-theft, motor vehicle theft, and arson. So-called "Group B" crimes include Forgery and counterfeiting, fraud, embezzlement, stolen property offenses, vandalism, sex offenses, drug offenses, offenses against family/children, liquor violations, disorderly conduct, simple assault, weapons violations, prostitution and commercialized vice, gambling, vagrancy, driving under the influence, and other offenses.

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The number of Group A crimes reported in Shelburne has dropped from a high of 42.34 crimes per thousand in 2005 to 25.35 crimes per thousand in 2009. The number of Group B crimes has ranged from 44.21 crimes per thousand in 2006 to 35.57 crimes per thousand in 2007. However, the Group B crimes have remained relatively steady during the past few years at 37 crimes per thousand. Shelburne's Group A crime rates remain well below county wide levels of 61.03 crimes per thousand, but the Town's Group B crimes are significantly higher than the county wide level of 15.14 crimes per thousand.

It should be noted that the definitions for Group A and Group B crimes used in the Vermont Crime Report are specified by the Federal Bureau of Investigation as part of their national Uniform Crime Reporting program. The standard definitions are used by all law enforcement agencies across the nation to ensure uniformity and comparability of crime data. However, they do not measure the full breadth of the tasks performed by the police department. According to Police Department personnel, many vital activities completed by the force do not fully comply with FBI definitions and thus are excluded from Vermont Crime Report statistics.

d. Future Demand and Capacity.

Traditionally, the determination of the capacity of a department to provide police services was based on population. However, while population is an important factor, this determination must be based on the social and economic conditions of the town and region, the type and amount of current and projected work load, the type, rate and quantity of future development, and the geographic location of the community. Effort should be made to maintain a police department of a size and with the equipment no more than is reasonably necessary for a community like Shelburne. In addition, effort should be made to encourage resolution of routine disputes between Shelburne residents without the need for intervention by the Police Department.

Table 16. Group A and Group B Crime Statistics, Town of Shelburne

Group A Offenses	2004	2005	2006	2007	2008	2009	2010
Arson	0	2	2	0	1	0	0
Assault	15	20	20	21	17	18	21
Bribery	0	0	0	0	0	0	0
Burglary	14	21	21	18	33	25	22
Counterfeiting / Forgery	1	3	1	3	6	2	0
Destruction / Damage / Vandalism	49	73	51	39	31	33	31
Drug Violations	16	45	59	25	32	26	41
Embezzlement	2	4	3	0	1	1	1
Extortion / Blackmail	0	0	0	0	0	0	0
Fraud	22	33	9	11	16	17	14
Gambling	0	0	0	0	0	0	0
Homicide	0	0	0	0	0	0	0
Kidnapping	0	0	1	1	0	0	1
Larceny	52	82	72	79	78	48	78
Vehicle Theft	1	5	3	2	4	4	0
Pornography	0	0	0	0	0	0	0
Prostitution	0	0	0	0	0	0	0
Robbery	0	1	0	1	0	0	1
Sex Offense: forcible	3	1	0	1	0	0	0
Sex Offense: non-forcible	0	0	1	0	0	0	0
Stolen Property	2	4	4	2	3	2	1
Weapons Violations	0	0	0	0	0	0	0

NIBRS Sub Total	177	294	247	203	222	176	211
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Group B Offenses	2004	2005	2006	2007	2008	2009	2010
Bad Checks	29	20	28	15	8	5	9
Curfew / Loitering	0	0	0	0	0	0	0
Disorderly Conduct	45	67	73	58	64	58	10
DUI	64	46	52	47	62	49	61
Drunkenness	25	27	33	31	35	42	56
Family Offenses: non-violent	12	12	7	3	4	5	50
Liquor Law Violations	34	10	12	19	29	29	23
Peeping Tom	0	0	1	0	0	0	0
Runaway	6	3	3	4	6	3	3
Trespassing	19	18	18	24	11	15	4
All Other Offenses	57	58	80	46	58	52	50

NIBRS Sub Total	291	261	307	247	277	258	266
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Group A and B Totals	468	555	554	450	499	434	477
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Community Facilities, Utilities, and Services

5. Fire

a. Fire Department.

Shelburne's Fire Department is an all volunteer force consisting of approximately 28 members, including 24 residents and 4 non-residents. The Department has been providing volunteer firefighting and other emergency services to the community for 70 years, such that only the cost of facilities, equipment and vehicles has been borne by the Shelburne taxpayer through the years.

The Department utilizes mutual aid, a non-contractual agreement with neighboring towns, which supplies reciprocal backup aid when needed. Calls are relayed to the Fire Department through the central dispatch service within the Police Department (Shelburne Communications Center). The Fire Department is part of the Chittenden County Mutual Aid system which has a Memorandum of Understanding on file that states essentially that each department will respond when requested and will be responsible for their own equipment and firefighters.

b. Facilities, Equipment, and Training.

The Fire Department is located in a separate building within the Shelburne Municipal complex. The 5,800 square foot, six-bay fire house accommodates the fire fighting vehicles and equipment as well as providing office space, meeting room, lockers, kitchen, and shower facilities.

The Department's rolling stock includes 3 pumper trucks, 1 tanker truck, 1 squad truck (a vehicle for carrying specialized equipment), a boat and 1 utility truck. The department also has an antique pumper truck. See Table 17.

Table 17. Vehicle Inventory, Shelburne Fire Department

<u>Year</u>	<u>Make</u>	<u>Vehicle Type</u>	<u>Pump Capacity</u>	<u>Water Capacity</u>	<u>Condition</u>
2004	Ford - KME	Pumper	500 gpm	250 gals	Excellent
1999	American LaFrance	Rescue	1500 gpm	1000 gals	Excellent
		Pumper			
1995	E-One/International	Tanker	500 gpm	1800 gals	Excellent
2010	KMW	Pumper	1250 gpm	750 gals	Excellent
1991	E-One/International	Heavy Rescue	N/A	N/A	Good
1990	Boston Whaler	Divemaster Rescue Boat			

Source: Shelburne Fire Department

The minimum safe turning radius for the Fire Department's longest vehicle is approximately 50 feet. The maximum building height that the Fire Department can serve using its existing equipment is 35 feet.

The Department holds drills once a week and has developed plans to prepare for emergencies in certain areas of Town. Training, both in-house and through the State Fire Instructors, is on-going. The Department conducts school safety and other public information sessions as a way to heighten the awareness of residents

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and encourage fire safety practices. The Fire Department requires those who will be involved in interior firefighting to be certified by the State at Firefighter I or Firefighter II levels. Currently 90% of the firefighters eligible meet these requirements and are certified.

Increasingly, the Department is having problems finding qualified volunteers. As a result, there are periods or blocks of time when volunteer coverage has been a problem, specifically during the workday. This is a problem being confronted by volunteer departments around the state,

c. **Water for Firefighting.**

Water for firefighting is supplied by the Champlain Water District (CWD) in areas serviced by CWD and Town distribution lines, as well as by dedicated fire ponds, natural surface water, and dry hydrants. Of primary concern to the Fire Department is "life safety". To be most effective, the Department needs an adequate and constant water supply. This requires that the water system be well maintained and upgraded to keep pace with the Town's growth. In areas beyond the Town's water system, dry hydrants should be established to meet demands generated by new development and address existing deficiencies. A "Fire Protection Water Supply Plan" has been developed to identify locations where the need for dry hydrants is greatest. In all, 11 sites have been identified. These are depicted on the Fire Protection Water Supply Locations Map (Map 25).

d. **Existing Demand/Level of Service.**

Over the last seven years, the number of calls responded to by the Department has averaged 2228 per year. The recent level of demand (280 in 2013) is significantly higher than the level experienced in 1999, when the Department responded to 252 calls. However, as noted in Table 18, there is significant variation from year to year. Also as noted in Table 18, the character of the incidents is varied, with a few calls a year being major fires, and the majority being small fires or other emergency situations.

Based on Department records provided as part of previous plan updates, average response time for all calls, including mutual aid calls, is 8.31 minutes. According to the Fire Chief, response time has increased over the past seven years. The increase is due to the fact that more and more fire calls are occurring during the daytime hours (peaking between 9:00 a.m. and 3:00 p.m.), fewer firefighters are available to respond, and those who are available have to come from a greater distance away.

To assist with this, certain areas have automatic responses. The area of Route 116 is an automatic response from the Hinesburg Fire Department in addition to Shelburne.

Table 18 **Fire Department Activity,
Town of Shelburne**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Structure/vehicle/brush fires	24	48	37	66	46	36	35	19	15	29	29
Vehicle accidents / extrications	40	55	44	42	57	38	43	63	41	46	41
False Alarms	43	18	15	15	18	28	25	25	33	32	48
Smoke or CO alarm	20	42	51	30	38	42	45	36	53	50	76
Public assist	15	22	22	16	27	11	19	17	20	21	13
Mutual Aid to other Depts	6	17	25	14	19	19	34	11	14	6	8
Electrical problems/ power lines	6	3	17	8	7	10	10	12	5	4	11
Other	4	13	14	22	9	12	21	54	37	35	54
Total	158	218	225	213	221	196	221	237	218	223	280

Source: Shelburne Fire Department

e. Future Demand and Capacity.

Projecting future demand for firefighting services is difficult. As with other services provided by the Town, the magnitude of future demand will be a function of residential and non-residential development within the Town. As noted in previous Town Plans, Shelburne' Fire Department relies on volunteers to fulfill the duties of the force. For a community the size of Shelburne and given the nature of the development found here, it is estimated that a minimum of 20 volunteers is necessary to adequately respond to firefighting and emergency needs. This number will increase as the community grows. In the recent past it has been difficult to keep the force's full membership. The alternative to a volunteer force is a full time paid force which would greatly impact the Town's budget.

According to local officials, the present fire station is at capacity in terms of housing the vehicles and equipment of the Department. As the demand arises for expanded services, equipment and fire vehicles to meet the needs of a growing community, the facility will need to be expanded.

As noted above, in the portions of Town not served by municipal water, fire ponds must be created to meet fire fighting needs. It is important that new development and structures be constructed to minimize the risk of fire and the loss of life and that all development has adequate emergency vehicle access and hydrant locations. Finally, at some times of the year, unpaved roadways make access by emergency vehicles difficult.

With respect to the community, volunteers firefighters that can meet the demands of State and Federal regulations are becoming less available. The amount of time and energy required has risen from a 40 hour training course in the 1980s to 210 hours today. This does not include annual recertification along with training in hazardous materials, first aid, driving, vehicle extrication and other areas in order to cover the types of emergencies that the Department responds to.

6. Rescue

a. Rescue Squad.

Since 1988, emergency medical services have been provided to the Town by Shelburne Rescue. From 1984 until July 1, 1988, emergency medical service was provided to the Town by Shelburne's First Response. Shelburne Rescue provides 24 hour emergency medical coverage, seven days per week, 365 days per year. They respond to emergency calls by ambulance, aid the Shelburne Fire Department, and provide mutual aid for neighboring rescue organizations (Charlotte, Ferrisburg, Hinesburg, Huntington, Monkton, South Burlington, and for Phase Vs at the Burlington International Airport). The organization also responds to calls requiring no patient transport.

In addition, Shelburne Rescue members may volunteer their services to be on hand at sporting and other community events. Shelburne Rescue also conducts public education courses on health and safety, offers CPR courses, and participates with the school system to offer a children's safety program.

b. Facilities, Equipment, and Training.

The Shelburne Rescue facility is located on Turtle Lane, one half mile from the village. The building was constructed in 1988. It houses the squad's 2 ambulances and other medical equipment. The facility provides office space, a meeting and training room, bedrooms with occupancy of up to four members, laundry, and kitchen. In 1996 the building was renovated and a new ambulance was purchased. There are plans to replace the older of the two ambulances in the near future. Dispatching is provided by Shelburne's communications center.

Shelburne Rescue's staff comprises approximately 40-45 volunteers, roughly sixty percent of whom are residents. A number of members are certified emergency medical technicians (EMTs). Of these, thirteen EMTs have earned the EMT-I designation, meaning they are authorized to administer drugs. Seven members of the squad serve as drivers without certifications. Although drivers are not as highly trained as EMTs, they do carry certification for cardiopulmonary resuscitation (CPR). Other members of the squad include Emergency Care Attendants (ECAs).

Overall, the squad's membership is highly qualified. Members constantly train, attain and upgrade certifications, and stay abreast of the latest technology in the emergency medical field, which is a major objective of the organization.

c. Existing Level of Demand/Level of Service.

According to local officials, Shelburne Rescue responded to approximately 700 calls for assistance in 2009, up forty percent from five years earlier. As noted in previous plans, in 1997 the squad responded to 500 calls for assistance, a 35 percent increase from 1992.

Squad officials report that, in recent years, more and more calls has been made to serve residents who do not require emergency care but do require transportation to a hospital. This type of activity places significant burdens on Shelburne Rescue and is continually be monitored.

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The amount of time elapsing between a call for assistance and the arrival of rescue personnel is a major factor in successful resolution of an emergency. According to squad records cited in previous Town Plans, the average response time for emergency calls is just under minutes. For 2013, response times were distributed as follows: 0-5 minutes, 50.84% of calls; 6-10 minutes, 33.333% of calls; 11-15 minutes, 4.93% of calls; over 15 minutes, 9.86% of calls.

d. Future Level of Demand/Capacity.

Projecting future demand for rescue services is not easy. As with other services provided by the Town, the magnitude of future demand will be a function of residential and non-residential development within the Town. However, it will also be affected by the demographic changes within the community, particularly increases in the average age of Shelburne residents. As noted above, the use of Shelburne Rescue resources for non-emergency services has been growing. If allowed to continue, this form of demand could pose a serious problem in the future.

e. Expansion and Financing.

Overall, Shelburne Rescue's facilities are in good repair, although the outside of the squad's headquarters is showing signs of deteriorating and may be in need of some future maintenance. Expansion may need to be considered in the future if squad needs increase.

All of the squad's operating expenses are maintained through the assistance of community based donations, a generously supported subscription drive, and revenue generated by Shelburne Rescue Insurance Billings. Residents can either subscribe to Shelburne Rescue's Subscription services annually or pay a fee per transport, if their insurance does not cover the expense.

7. Water Department and Water Supply

a. Water Department.

The responsibility of providing public water and related services to Shelburne residents rests with the Shelburne Water Department. This department oversees the provision of water resources to some 2100 residential accounts and 215 commercial accounts in the community. All connections are metered. The total population served is estimated at 5145.

In conjunction with Water Department operations, the Shelburne Water Commission establishes policy and budgets related to the operation of the Shelburne Water Department. The provision of water and the services of the Water Department are paid for directly by the users of the system through user fees.

The Town of Shelburne is a member of the Champlain Water District (CWD) which provides the main source of water for the community. The CWD's primary function is to supply water to its members for drinking, general use and fire protection purposes. Shelburne is represented by one member on the CWD Board.

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b. Facilities.

The distribution of public and private water lines in Shelburne is extensive. Presently, there is no water service boundary delineated which defines the limits of a service area. Primarily, the network serves the central core area of the town with main lines running along Route 7 and the northern half of Spear Street. The network serves lands between the village and the lake, down to the Town Beach and south to Charlotte. See the Water Service Area Map (Map 26).

CWD's source of water is Lake Champlain, specifically from an intake in Shelburne Bay, near Red Rocks Point. Water provided by CWD is filtered, chlorinated and fluoridated at a facility located in South Burlington and brought to the Shelburne town line by a main transmission line. CWD owns the main line which runs along the railroad tracks from Pinehaven Shore Road to Harbor Rd. From here the network branches out by Town-owned lines. Many connections are made to the mainline which go off to serve neighborhoods and commercial areas.

The Town also owns two 500,000 gallon storage tanks, one located at the north end of Spear Street and the other on Route 7, south of the village and a 628,000 gallon tank at Wake Robin. All other components of the water distribution system in the town are either owned by the Town or owned privately.

c. Existing Demand/Level of Service.

As shown in Table 19, the level of general water use in the Town currently stands at about 179 million gallons per year. The majority of Shelburne's residences receive their water from the Town's water system. The five year average daily water usage is approximately 476,813 gallons per day. Seasonally, Shelburne's consumption is lower in the winter and highest in the summer.

Table 19.	Annual Water Purchases in Millions of Gallons									FY2001- FY2013 Change	
	FY2001	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	Absolute	%	
Gallons Supplied by	190.418	177.004	182.867	170.824	170.482	169.810	179.619	179.449	-10.969	-5.7%	
Champlain Water District											
<i>SOURCE: Shelburne Finance Director</i>											

Overall, the level of service provided by the Town's water system is good. The system's water supplier (Champlain Water District) has won national awards and the system itself is in good repair. Nevertheless, certain portions of the system will require attention in the near future. For example, the lack of turnover at the tank located near Wake Robin poses operational challenges.

d. Future Level of Demand and Capacity.

The magnitude of future demand for water will be a function of residential and non-residential development within the Town. Assuming a 17 percent increase in average daily water demand over 20 years (consistent with 17 percent sewage demand increases projected by the CCRPC from 2000 to 2020), future demand could stand at 625,400 gpd. Given the capacity of water supply and treatment facilities administered by the Champlain Water District, the availability of adequate water supplies for Shelburne residents and businesses

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would not appear to be an issue. New line connections between the Wake Robin tank and neighborhoods to the east have addressed the “lack of turnover” problem cited above.

e. Expansion and Financing.

The Town water system has been extended many times so that new growth, especially residential, could be accommodated. The majority of the extensions have been installed in conjunction with developments with the cost borne by the developer, not the Town. Improvements to the system are ongoing. In conjunction with the widening of US Route 7, for example, the Shelburne Water Department relocated water lines within the Shelburne Road corridor. However, other than this project mentioned above, no other town-initiated extensions of the public water service lines are planned in the next 20 years.

f. On-Site Wells.

Many of Shelburne's residents are served by private wells. This is especially the case in the more rural easternmost third and westernmost third of the town where land use is not as compact as in the central core area. Reliance of residents on on-site wells points to the clear need for groundwater protection. In the future, as now, development review decisions by the Town should assess the potential for negative impacts on groundwater quality. Degradation and depletion of groundwater supplies should be avoided to the greatest extent possible.

8. Wastewater Collection and Treatment

a. Wastewater Department.

The Town of Shelburne is served by two wastewater treatment facilities (WWTF) and a collection network managed by the 5 employees of the Shelburne Wastewater Department. The provision of municipal wastewater treatment services is of major importance to the environmental, economic, and public health of the community.

b. Facilities.

Wastewater Treatment Facility #1

WWTF #1, which began operation in 1969, is located at the end of Crown Road. This facility is a Vermont Grade II tertiary treatment facility. The facility serves, generally, the northern part of Shelburne, including those lands north of Webster Road and the LaPlatte River and much of Shelburne's commercial land use along Route 7. WWTF #1 currently serves 87 commercial and 885 residential accounts (serving an estimated 2198 residents). Average residential use is around 18,000 gallons per quarter.

Wastewater is treated by two Sequential Batch Reactors (SBRs) and phosphorous is removed using both a biological and chemical precipitation process. The treated wastewater is disinfected using sodium hypochlorite and dechlorinated using sodium bisulfite. The outfall for the plant is Shelburne Bay. / . Approximately 1.4 million gallons (120,000 dry pounds) of biosolids is produced annually. The biosolid is transported from WWTF#1 to WWTF#2 for dewatering.

The collection system consists of approximately 400 manholes, 10 miles of sewer lines, and 9 Town owned and 1 private pumping stations.

Wastewater Treatment Facility #2

WWTF #2, which began operation in the 1950s, is located on Turtle Lane across from Davis Park and the Shelburne Community School. This facility is a Vermont Grade IV tertiary treatment facility. The facility serves an area generally south of the LaPlatte River in the village and southern part of the town. WWTF #2 serves 87 commercial and 1063 residential accounts (residential population estimated at 2402).

Like WWTF #1, wastewater at WWTF #2 is treated utilizing the SBR/chemical precipitation process. Unlike Plant 1, Plant 2 accepts and treats septage from private waste haulers. The treated wastewater from Plant 2 is disinfected using ultraviolet light. The outfall is into McCabes Brook, which flows to Lake Champlain's Shelburne Bay via the Laplatte River. WWTF#2 produces approximately 4.2 million gallons of biosolids (350,000 dry pounds) annually. These biosolids along with the biosolids generated by WWTF#1 are dewatered using a centrifuge. The Class B dewatered biosolids are transported to Grasslands Management Facility for composting in Chateaugay, New York .

The collection system at WWTF #2 includes approximately 580 manholes, 20 miles of sewer lines, 10 public pump stations, and 5 privately owned pump stations.

c. Existing Level of Demand.

In 1996 the Town passed a bond issue to expand both treatment facilities and to upgrade the collection system. This project also included extension of sewer service to Shelburne Heights. The expansion, which came on line in 2001, increased the capacity of WWTF #1 to 440,000 gallons per day (gpd) and WWTF #2 to 660,000 gpd of domestic wastewater.

Wastewater treatment facilities are designed to accept hydraulic loadings based upon domestic strength waste. The design criteria of a treatment facility include the hydraulic capacity (flow per day) and many other loading capacities, such as, solids loading, oxygen demand, and nutrients. The facilities average approximately 97% removal of biochemical oxygen demand (BOD) and total suspended solids (TSS).

Shelburne's two wastewater treatment facilities currently process roughly 250 million gallons of wastewater annually, a decrease of approximately 9.0% since 2005. Collection system improvements over the past 5 years have helped to reduce infiltration and inflow (I&I). (I&I is a term used when ground and surface water, which does not need treating, enters the system via deficient manholes, sewer lines and private property sources.). With recent improvements to the collection system along with the 2000 wastewater treatment facilities upgrades, current hydraulic demand is well below permitted levels.

d. Capacity.

Figures pertaining to the capacity of the Town's wastewater treatment system are presented in Table 20. This data comes from a Facilities Planning Report prepared for the Town in 2013 by Aldrich and Elliot Engineers.

Community Facilities, Utilities, and Services

Table 20. Wastewater Treatment Facility Capacity

Facility	Permitted Capacity	2011 Average Annual flow	Committed Reserve Capacity	Uncommitted Reserve Capacity
WWTF 1 (Crown Road)	440,000 gpd	358,000 gpd	20,192	61,808 gpd
WWTF 2 (Harbor Road)	660,000 gpd	484,000 gpd	31,274 gpd	144,726 gpd

Source: 2013 Facilities Planning Report, Aldrich and Elliot Engineers

Table 20 reflects the fact that improvements were made to facilities in 2000 to increase system capacity. These improvements were designed to accommodate the development anticipated to take place between 1998 and 2018. Although existing uncommitted reserve capacity at WWTFs 1 and 2 is currently estimated at 206,000 gallons per day, it should be noted that a portion of the wastewater treated by Shelburne’s WWTFs continues to be ground- and surface water which infiltrates pipes carrying wastewater but otherwise does not require treatment. Continued improvements to limit the amount of I&I could reduce demands placed on the wastewater treatment system and thus increase available flows.

It should also be noted that currently permitted treatment levels (1,100,000 gallons for both facilities) are possibly below the actual treatment capacity of the facilities. The amount of treatment authorized for each plant could be increased in the future if data indicate that actual treatment capacity is higher than the volumes used at present. The two facilities also could be connected, via a large pipe, so that any limitations in treatment capacity within the service area for WWTF # 1, could be offset by the treatment capacity for WWTF#2.

e. Future Demand.

Future wastewater needs can be estimated on the basis of the population, housing units and land uses projected in this plan when considering expansion plans. The Shelburne Sewer Capacity Study completed in the late 1990s projected total wastewater demand levels for 2018 at 1.1 million gallons per day. As noted above, existing capacity at the facilities was designed to accommodate this level of wastewater treatment. According to the Study, the total wastewater demand at build-out within the sewer service area is 1.6 million gallons per day, a level not anticipated to occur until the year 2035.⁵ It should be noted that an alternative projection of future wastewater treatment demand, prepared by the CCCRPC, estimates an increase of 104,485 gallons per day by 2020⁶, suggesting a total demand of 968,909 gallons per day.

f. Receiving Waters.

Lake Champlain, specifically Shelburne Bay, provides the receiving waters for the treated effluent from Shelburne's wastewater treatment systems. The Agency of Natural Resources has conducted evaluations of the assimilative capacity of Shelburne Bay that have determined the lake's capacity to accept treated effluent. Historically, these studies have determined that the lake has capacity beyond that approved in total for the

⁵ According to the Build out analysis prepared for Shelburne by the Chittenden County Regional Planning Commission, the total residential build-out within the sewer service area is approximately 3400 residential units. The total non-residential build-out within the sewer service area is approximately 5.6 million square feet.

⁶ Regional Public Sewage Treatment Capacity Study, August 2002.

treatment facilities that now discharge into it. According to the 2002 Total Maximum Daily Load (TMDL) study completed for Lake Champlain, phosphorus wasteload allocations for all Vermont wastewater facilities is 55.8 metric tons per year (mt/yr), representing a 22.3 mt/yr reduction from the currently permitted load of 78.1 mt/yr⁷. Significantly, Shelburne's facilities have phosphorus limits in their current discharge permits that restrict them to loads less than the annual load at 0.6 mg/l. Currently the State of Vermont is working on establishing a new TMDL for Lake Champlain. In the meantime, these facilities will retain their currently permitted loads in the wasteload allocation. As noted in the recent Aldrich + Elliott Engineering report, the effluent total phosphorous concentrations at both WWTF 1 and WWTF 2 are consistently below the current TMDL annual limits for phosphorous. However, if TMDL annual limits for phosphorous are reduced, this would not necessarily remain the case.

g. Wastewater Allocation Ordinance

The Town has made a significant investment in a municipal wastewater treatment system for the dual purposes of abating pollution and supporting planned growth, both residential and commercial, at higher densities than would be possible without a public wastewater system. Maintenance of such a system can be costly. Users of the municipal wastewater treatment system pay user fees to cover the costs of the service. Bonds for expansions, additions, and repairs are repaid by only the users of the system.

To prudently manage its investment in wastewater treatment, the Town has adopted a sewer allocation ordinance. Under this ordinance, the uncommitted reserve capacity of the Town's wastewater treatment facilities is allocated on a rational basis. Reserve capacity is first divided into three year blocks. Then, within a three year block, 80 percent of capacity is earmarked for residential development and 20 percent for non-residential development. Set-asides reserve a 10 percent of uncommitted reserve capacity for development such as affordable housing.

Shelburne's wastewater allocation policies also include restricting the location of wastewater treatment lines to a defined Sewer Service Area (SSA). The SSA was established following considerable public discussion in the years leading up to 2001, when the ordinance was amended to include the SSA. In the years since, the Planning Commission and Selectboard have heard requests from parties seeking changes to the SSA. However, to date, no changes have been made. When one such request was made in early 2011, the Planning Commission discussed the issue at length. The Commission eventually adopted a motion recommending to the Selectboard that the sewer system area not be expanded unless there is comprehensive study of the implications of expanding the system.

The request made in 2011 was renewed in 2013. At the time the request was renewed the Selectboard asked the Planning Commission to evaluate the merits of changes to the SSA in a range of locations. The Planning Commission discussed the matter over a period of months and considered nine distinct changes. In July of 2013, the Planning Commission produced a memorandum endorsing two such changes. No decisions regarding the SSA have been made by the Selectboard, which is exploring options for conducting a comprehensive study on the topic.

⁷ 1.0 mt/yr = 1,000 kg/yr = 6.04 lbs/day

Community Facilities, Utilities, and Services

HISTORIC FLOWS										
LICENSED CAPACITY=440,000 GALLONS PER DAY										
WWTF#1	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Ave Daily Flow	368,500	140,671	339,301	363,770	404,751	383,693	330,011	263,425	320,277	288,926
Reserve Capacity	71,500									151,074
Committed Capacity	35,817									20,192
Set Aside	16,295									20,810
Available Capacity	19,388									110,072

LICENSED CAPACITY=660,000 GALLONS PER DAY										
WWTF#2	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Ave Daily Flow	375,445	291,367	335,553	328,699	365,255	387,685	331,488	408,468	350,400	375,797
Reserve Capacity	284,555									309,600
Committed Capacity	49,752									31,274
Set Aside	32,600									20,401
Available Capacity	202,203									257,925

PLANTS COMBINED	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total Ave Daily Flow	743,945	432,038	674,855	692,468	770,005	771,378	661,499	671,893	670,677	664,723

Total Available Capacity 367,997

COMMENTS REGARDING INFILTRATION

In Fiscal year 2012-2013 the total wastewater flow treated at both facilities were 232 million gallons and the total budgeted water sales were 130 million gallons. The difference is ground and surface water that infiltrates into the wastewater collection system and is processed by the treatment facilities. Two major projects have reduced the infiltration. The Route 7 construction largely reconstructed the sewer system that lies beneath the road. The second project was repair and relining manholes and pipe joints in the Plant #1 area and installing a new line in the Green Hills-Hillside neighborhoods. In addition the staff has been repairing leaky manholes and have a program in place attempting to have roof, cellar, and yard drains removed from the Town system. Over time, the investment to remove a large portion of infiltration will provide additional sewer capacity. It is also possible, yet very difficult, to increase the permitted capacity of each plant by engaging an engineer to review the treatment process and qualify the design for additional process capacity.

PROJECTIONS

WWTF#1	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Ave Daily Flow	290,876	299,546	299,756	299,756	299,756	299,756	299,756	299,756	299,756	299,756
Reserve Capacity	149,124	140,454	140,244	140,244	140,244	140,244	140,144	140,244	140,244	140,244
Committed Capacity	18,160	9,490	9,280	9,280	9,280	9,280	9,280	9,280	9,280	9,280
Set Aside	20,810	20,810	20,810	20,810	20,810	20,810	20,810	20,810	20,810	20,810
Available Capacity	110,154	110,154	110,154	110,154	110,154	110,154	110,054	110,154	110,154	110,154

WWTF#2	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Ave Daily Flow	384,732	393,720	404,190	413,190	418,830	424,470	430,110	435,750	441,390	447,030
Reserve Capacity	275,268	266,280	255,810	246,810	241,170	235,530	229,890	224,640	219,390	214,140
Committed Capacity	19,830	15,160	14,530	14,320	14,110	14,110	14,110	14,110	14,110	14,110
Set Aside	20,401	20,401	20,401	20,401	20,401	20,401	20,401	20,401	20,401	20,401
Available Capacity	235,037	230,719	220,879	212,089	206,659	201,019	195,379	190,129	184,879	179,629

PLANTS COMBINED	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Ave Daily Flow	675,608	693,266	703,946	712,946	718,586	724,226	729,866	735,506	741,146	746,786

Total Available Capacity	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Available Capacity	345,191	340,873	331,033	322,243	316,813	311,173	305,433	300,283	295,033	289,783

ASSUMPTIONS

Assumptions include the following:
 -2011 plant flows begin with a 3 year average for 2008-2010;
 -Shelburne Bay Senior Living used the allocation from the Ponderosa;
 -Harrington Village will be built for 5 single family, and 87 multifamily homes;
 -Shelburne Green was granted 378 gpd of new allocation but had an imbedded allocation of 1950;
 -The Thomas property will be developed for 49 single family homes;
 -Projections beyond 2015 assume less units that the 19 year average (30) (No SBSL, Wake Robin, etc);
 -Further, future residential growth within Sewer Service Area will take place in service area for WWTP 2;
 -Infiltration inherent with development add +/- 600 gpd.

h. On-Site Sewage Disposal

A not insignificant amount of development in Shelburne relies on private community sewage disposal systems, rather than the Town's municipal system or individual septic tanks and leach fields. Such systems provide for the collection of domestic wastes and the conveyance of that waste via a pipeline to a point of subsurface disposal. Treatment is usually primary, through settling in a large septic tank. Any such systems of this type that are designed to handle 6500 gpd require the issuance of an Indirect Discharge Permit by the Protection Division of the Vermont Agency of Natural Resources. Where the system is less than 6500 gpd, approval is through a Certificate of Compliance, issued by a district engineer from the State's regional office.

A community wastewater system may be located on the property being developed, or it may be on another property. The community approach allows the developer to site the project without concern for the capability of soils at the site to support sewage disposal. This is a significant departure from recent land use tradition in the Town, and in most parts of the state, where soil capability has been the determinant factor in the "developability" of a piece of land. Fragile areas, such as wetlands, steep slopes and uplands were, in a sense, protected by virtue of their inability to "perc", or pass the engineering test for on-site disposal.

As noted in previous plans, the prospect of development in fragile environments does give cause for some concern. Conversely, a community system has the ability to support a cluster pattern of development, which can complement open space and land conservation efforts. Community systems may represent a long term liability for the Town. Ownership and maintenance responsibilities are generally in the hands of the property owners of the development served by the system. Should the system fail and require significant investment, the Town must rely on those owners to bear the costs. Particularly when the community system is off site, owners may be unwilling, if not unable, to put forward the necessary remedial effort. In some cases, repair may not be possible, requiring the relocation of the system or the extension of the municipal system to accommodate those served by the failed system. These are costly undertakings, and may be preceded by a period of environmental degradation.

9. Stormwater Management

Stormwater management involves managing the impacts of stormwater "runoff." As noted in the EPA document *After the Storm*,

Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground. Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people. Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats

In Vermont, communities are paying greater attention to stormwater runoff for a variety of reasons. Some of the reasons stem from state and federal regulations designed to implement the federal Clean Water Act and similar legislation. Others reasons stem from a growing awareness of the water quality impacts of different land use practices and from concerns about threats posed by these activities to drinking water and other water resources. As noted by the Selectboard, Stormwater regulations will have a major impact on the Town and the public needs to be fully informed.

Community Facilities, Utilities, and Services

a. Local Administration

Responsibility for stormwater management in Shelburne is overseen by the Town Manager, with assistance from the Planning office, with additional support provided by other departments. As noted below, support in selected areas of storm water management is provided to the Town by the Chittenden County Regional Stormwater Education Program (RSEP).

b. Stormwater Facilities

Stormwater facilities located within Shelburne are extensive. They include facilities such as curbed roadways, ditches, culverts, catchbasins, stormdrains, detention basins and settling ponds, outfalls, and other features. Many of these features are public, in that they are located within public rights-of-way or have been granted to the Town via easements. However, a significant number of stormwater facilities in the Town are and will remain the responsibility of individuals, businesses, or homeowners associations. Map 27 depicts the location of selected portions of the Stormwater management system.

c. State and Federal Stormwater Management Requirements

At the time the previous Town Plan was prepared, many of the details relating to state stormwater management requirements were uncertain, owing to ongoing appeals to, and decisions by, the Vermont Water Resources Board. The broad outline of state and federal stormwater management requirements were known, however. Today, the details of the storm water management system in Vermont is (no pun intended) clearer than in 2007.

As a result of state legislation adopted in 2002, municipalities such as Shelburne were required to play a significant role in clean up of “impaired waterways.” This role includes assisting in the design and installation of significant stormwater infrastructure. In Shelburne, only one watershed is recognized by the State as being impaired due primarily to pollution caused by stormwater runoff. This watershed drains lands flowing into the Munroe Brook. As shown on the Stormwater Infrastructure, Impaired Watersheds, and Other Regulatory Boundaries Map (Map 27), the Munroe Brook watershed lies in the north central portion of Shelburne and includes several older residential subdivisions and developed areas as well as a significant amount of open land.

Meanwhile, pursuant to federal requirements, amongst other tasks for which the Town is responsible is the development, implementation, and enforcement of a Stormwater Management Program (SWMP) designed to reduce the discharge of pollutants as part of what is known as MS4 permitting. Six “minimum control measures” are included in the SWMP. These measures are:

- Public Education and Outreach on Stormwater Impacts
- Public Involvement/ Participation
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Runoff Control
- Post-Construction Stormwater Management in New Development and
- Redevelopment
- Pollution Prevention/ Good Housekeeping for Municipal Operations

Community Facilities, Utilities, and Services

In addition, municipalities that discharge to stormwater impaired waters must prepare and implement a Flow Restoration Plan for their portion of the stormwater impaired watershed.

To address some of these measures, the Town has joined with other communities and storm water system operators to implement a public education program through the Chittenden County Regional Stormwater Education Program. Originally created to address public education requirements in a cooperative fashion (such as by distributing educational materials to the community and/or conducting equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff), the RSEP now also assists the Town in public involvement activities. The RSEP maintains a web site at www.smartwaterways.org.

Since adoption of the 2007 Comprehensive Plan, the Town has assumed responsibility for addressing the remaining elements of the Stormwater Management Program. More specifically, it has developed and is implementing a program to detect and eliminate illicit discharges. Components of the illicit discharge program include: creating a storm sewer system map; prohibiting through ordinance non-storm water discharges into the storm sewer system; implementing appropriate enforcement procedures and actions; developing and implementing a plan to detect and address non-storm water discharges to the system; and informing public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.

To address the fourth element of the Stormwater Management Program, Shelburne has developed and is implementing a program to reduce pollutants from construction activities that result in a land disturbance of greater than or equal to one acre. This program was effected through the adoption of amendments to the Shelburne Zoning bylaw. These amendments resulted in the creation of a Stormwater Overlay zoning district and the adoption of storm water-related standards as part of the Site Plan review section of the bylaw. (Reduction of storm water discharges from construction activity disturbing less than one acre is to be included if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more.)

The fifth element of Shelburne's Stormwater Management Program relates to erosion control activities. To comply with Clean Water Act requirements, the Town was required to develop and implement strategies that: include a combination of structural and/or non-structural best management practices (BMPs); use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects; and ensure adequate long-term operation and maintenance of BMPs. Shelburne has addressed these requirements through the adoption of bylaw amendments.

Finally, Shelburne has addressed the sixth element of the Stormwater Management Program by develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations.

With issuance by the state of an updated MS4 permit in December of 2012, the Town is authorized to discharge stormwater via the municipality's stormwater infrastructure. However, as noted by the Agency of Natural Resources,

The most significant change in the 2012 MS4 permit is the requirement for municipalities to develop Flow Restoration Plans (FRPs) to implement the stormwater TMDLs. The FRPs must be developed for each impaired watershed within 3 years and must include the following elements: 1) an identification of the required controls, 2) a design and construction schedule, 3) a financial plan, 4) a regulatory analysis, 5) the identification of regulatory assistance, and 6) identification of any third

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party implementation. The schedule shall provide for implementation of the required BMPs as soon as possible, but no later than 20 years from the effective date of the permit.

d. Other Local Stormwater Regulation.

In addition to the Illicit Discharge ordinance and Zoning bylaw amendments mentioned above Shelburne's subdivision regulations have for several years contained general requirements pertaining to stormwater and erosion control. For example, section 810 (3) states:

The smallest practical area of land shall be exposed at any one time during development. The exposure should be kept to the shortest practical period of time. Land should not be left exposed during the winter months. Where necessary, temporary vegetation and/or mulching and structural measures may be required by the Commission to protect areas exposed during the development. Sediment basins (debris basins, desilting basins, or silt traps) shall be installed and maintained during development to remove sediment from runoff water and from land undergoing development.

Meanwhile, in section 970, the bylaw requires that:

The subdivider shall remove, either by pipe or by open ditch, any surface water that may exist as a result of the subdivision. However, substantial alterations to existing surface water drainage simply for the purpose of development will not be undertaken. ... In design of the drainage system, natural waterways and drainage ways shall be utilized to the fullest extent possible.

Although the bylaw states that a subdivider's engineer must provide information necessary to determine the effect of the subdivision on existing downstream drainage facilities outside of the area of the subdivision, it is clear that the bylaw will need to be amended to achieve consistency with the state and/or federal requirements listed above.

e. Future

Stormwater management is certain to remain an important planning issue, influencing land development patterns as well activities and techniques. In the future, a form of development known as Conservation Design will likely take on increasing importance. Conservation Design places less emphasis on structural stormwater practices and emphasizes site design that reduces impervious areas. Conservation Design approaches also highlight the value of a water-budget approach to site design where recharge of rainfall is a primary design consideration.

In general, the amount of phosphorus and nitrogen washed off typical urban and suburban lands is directly related to the amount of impervious cover present in that drainage area. According to research, once a development exceeds 20 to 25 percent impervious cover range, nutrient loadings to waterways often exceed background levels—despite even the most effective BMPs.

In addition, much stormwater-related pollution entering streams in the region is related to agricultural practices. In the past, although agricultural activities were regulated to control stormwater pollution, these regulations were not as extensive as regulations applied to other industries. Owing to new federal requirements, there will be increased regulation of agricultural practices in the future. The form and extent of these regulations is not yet known.

10. Electricity, Gas, and Communications

Green Mountain Power Corporation (GMP) supplies electricity for the Town. Natural gas, available to residents and businesses throughout much of the central portion of the Town, is supplied by Vermont Gas. Communication services are provided by Fairpoint, other “landline” and mobile telephone companies, internet service providers, and the cable company (Comcast).

a. Electricity.

While Shelburne as a community grew, in part, due to the availability of water power, there currently are no large local sources of power generation. Electric needs of the community are met by the distribution system operated by GMP, which is fed by Vermont sources and by the New England power grid (accessed by lines operated by VELCO/TRANSCO). See Map 28. Aside from small scale evaluations of wind potential, the potential for other power generating facilities in the Town has been not investigated.

An historic 34.5 KV transmission corridor runs through Shelburne from north to south, as does a new 115 KV transmission line in a parallel/overlapping corridor. The new 115 line was constructed as part of the Northwest Reliability project. A new and expanded substation on Harbor Road also serves the area. Electrical transmission facilities such as these must be approved by the Vermont Public Service Board (PSB), which must evaluate a project’s conformance with Section 248 of Title 30, Vermont Statutes Annotated. Section 248 requires the PSB to determine whether or not a project serves the public good. The Town of Shelburne has been and remains an active participant in the Section 248 processes..

It should be noted that, as its name implies, the Northwest Reliability project was intended to provide system reliability. VELCO’s application did not indicate that the project is being pursued to “wheel” commercial power from Hydro-Quebec to southern New England. In the event electrical transmission lines in Shelburne are proposed for additional expansion or modification, this Plan should be a resource to the Town and to the PSB in the course of future Section 248 proceedings.

As noted by the company's web site, Green Mountain Power is owned by Northern New England Energy Corporation, a wholly-owned subsidiary of Gaz Métro. Green Mountain Power transmits, distributes and sells electricity and utility construction services in the State of Vermont in a service territory with approximately one quarter of Vermont’s population. All told, it serves approximately 90,000 customers. Within Shelburne, GMP serves some 848 Commercial customers (accounts), and 2,730 residential customers.

Programs offered by the company include water heater rentals, choice of energy mix (including energy from renewable energy sources), and electrical contracting services. Among the company's newest initiatives is smart metering. Smart metering involves the deployment of meters offering two-way communication that will send and receive information to monitor load and customer usage, provide customer information, and help the company with outage issues. Various communication media, including wireless, power line cable, fiber, and cell phones are being considered. Many of the company’s customers live in remote areas, and the final technology choice will be made according to which one works best in a particular area.

According to published sources, GMP hopes to have deployed smart meters at the homes or businesses of all its 92,000 customers within three years. A monitor displaying information will also be installed at each home or business, to encourage customers to be more aware of the need for conservation measures. The company has already introduced several programs that provide customers with a way to neutralize their carbon footprint.

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b. Gas.

Vermont Gas Systems (VGS) was established in 1965 to supply natural gas to customers in Chittenden and Franklin Counties. According to published sources, Vermont Gas currently serves over 40,000 customers. Fuel sold by VGS originates in Alberta, Canada. It is transported across Canada via the TransCanada PipeLine and enters Vermont Gas Systems' main pipeline at Highgate, on the Vermont/Canada border.

In recent years, Vermont Gas has expanded the size of its service area in Shelburne significantly. The area with access to gas is depicted in the Existing and Proposed Electrical Transmission Facilities and Natural Gas Service Area Map (Map 28). Services offered to residential and commercial customers include equipment rentals, fueling for natural gas vehicles, and efficiency services such as audits.

As noted in previous versions of the Plan, in the late 1980s, a proposal for a major natural gas pipeline to supply Canadian natural gas to southern New England was developed. Although a considerable amount of research went into planning the route, the project was eventually dropped. In the event similar proposals are developed in the future, this plan should be reviewed to insure that negative environmental and other impacts of such a project do not outweigh the benefits to Shelburne and the other areas served.

c. Communications.

The communications infrastructure in Shelburne consists of public and private systems of various kinds including "landline" and cellular telephone, cable television, and newspapers. Communications infrastructure was taken for granted and not mentioned in previous Town plans, yet it is as important as transportation infrastructure, energy infrastructure and other basic public and private systems on which society currently depends. In recent decades, with the rapid evolution of the Internet, the world has undergone what can only be described as a communications revolution.

Encouraging a diversity of communication systems and new technology are extremely important for community and economic development. However, some of these technologies come with new equipment and facilities which can change the character of the community. For this reason, the Town has taken the initiative in recent years to regulate development of those facilities via Shelburne's Telecommunication Ordinance. However, as other communities in the state have done, the Town should keep abreast of the ever-changing communication technology to better position itself to negotiate for the best possible communication infrastructure for the Town.

Specific communications providers in Shelburne include Fairpoint Communications, Comcast, and Sovernet. Fairpoint describes itself as "a leading communications provider of high-speed Internet access, local and long-distance phone, television and other broadband services to customers in communities across 18 states." Additionally, FairPoint delivers data and voice networking communications solutions to residential, business and wholesale customers. Since coming to Vermont in November 2006 (after purchasing Adelpia Communications), Comcast has expanded its services across Vermont. As reported by published sources, it has invested in its network to bring broadband services to previously unserved homes and businesses and partner with local communities. The company has launched a number of its services, including digital cable, high-definition television, high-speed internet, digital voice, and the business services. Founded in 1995, Sovernet Communications provides Internet and telecommunication services to residential and business customers throughout Northern New England.

11. Social Services

A wide variety of social services are available to Shelburne's residents through agencies and organizations located in the Burlington area. These services range from childcare and care of the elderly to food shelves and emergency shelters.

a. Child care.

Child care is one of the most important social services provided to the community. With the emergence of the two income family and both parents working outside the home, child care has become a necessity. Reflecting this reality, in 2003 the Vermont legislature amended state planning statute by adding the following goal:

To ensure the availability of safe and affordable child care and to integrate child care issues into the planning process, including child care financing, infrastructure, business assistance for child care providers, and child care work force development.

As noted in *Guidelines for Addressing the Vermont Child Care Planning Goal*, prepared by Windham Regional Commission and Windham Child Care, investments in the child care infrastructure can have direct positive effects on the growth and vitality of Vermont's economy. Primary types of child care facilities include registered facilities and licensed facilities. In Vermont, the following definitions apply:

- **Licensed Program:** A child care program providing care to children in any approved location. The number and ages of children served are based on available approved space and staffing qualifications, as well as play and learning equipment. A Licensed program must be inspected by the Department of Labor and Industry's Fire Safety Inspectors and must obtain a Water and Wastewater Disposal Permit from the Agency of Environmental Conservation. A Licensed program is considered a public building under Vermont Law. Types of licensed programs include: early childhood programs, school-age care, family homes and non-recurring care programs.
- **# Registered Family Child Care Home:** A child care program approved only in the provider's residence, which is limited to a small number of children based on specific criteria.

According to the 2010 Census, there are 324 children under age 5 in Shelburne, a significant percentage of whom require at least occasional childcare. In 2000, 46 percent of children under 6 resided in homes where all parents are in the labor force. The census did not collect data in this way in 2010. The following is what we can glean. According to the 2010 census, 56% (1,692) of Shelburne women over the age of 16 were in the labor force. Of these, 23% (389) had children under age 6 and among those, 77% (300) lived in households in which all parents were in the labor force.

According to the Child Care Resource Referral Database, supplemented by contacts with Shelburne child care programs, there are currently 8 licensed (not family child care) programs. Among those:

- 3 offer a full-day program for up to 5 days per week for children birth to 5
- 1 offers a full-day program (with part-day options) for up to 5 days per week for children ages 2 -5
- 1 offers a full-day program for up to 5 days per week for children ages 3 -5
- 2 offer only part-day programs for children ages 3-5
- 2 offer after-school programs

Community Facilities, Utilities, and Services

Among these programs, there are 480 slots (the number of children that can be served at one time) including:

- 120 full-day slots for children ages birth to 3
- 197 full-day slots for children ages 3-5
- 48 part-day programs for ages 3-5
- 115 after-school slots for children ages 6-12

Some 201 Shelburne children are enrolled in one of these programs. Children are enrolled from other towns including: Colchester, Williston, South Burlington, Milton, Burlington, Jericho, Bristol, Charlotte, Hinesburg, Essex, Essex Junction, and Jeffersonville. (N/A)

While the number of center-based programs remained the same, there was a 19% increase in the number of center-based child care slots between 2005 and 2009 and then a 51% increase from 2009 to 2014. The number of slots for full-day, full-week options and after-school options grew while the number of slots in part-day options declined.

Center-based	2005	2009	2014
Programs	8	8	8
Total Slots	268	318	480
Full-day ages 0-3	82	110	120
Full-day or part-day for ages 3-5	126	150	197
Part-day only ages 3-5	60	58	48
After-school	121	63	115
Shelburne Children Enrolled	264	201	N/A

In addition, currently there are 4 registered family child care programs and 1 licensed family child care program operating in Shelburne. Among these programs:

- 3 offer care 5 full days per week (of which 2 programs offer after school care)
- 2 offer a part-day preschool program ONLY

There are 43 slots offered in these programs (the number of children that can be served at one time) including, of which:

- 8 are full time infant slots
- 16 are full time 2-5 year old slots
- 7 are after school slots
- 12 are part day preschool slots

According to Child Care Resource, 36 Shelburne children are enrolled in one of these programs. Children are enrolled from surrounding towns that include: Charlotte, Hinesburg, Monkton, South Burlington, St. George, Burlington, Essex, and Williston.

Between 2005 and 2009, there was an increase in the amount of child care services available through family child care and an increase in the number of Shelburne children enrolled (N/A). However, since 2009, there has been a decrease in the number and capacity of family child care homes. The decrease is especially notable for infant and school age slots. CCR staff attribute the decline to

Community Facilities, Utilities, and Services

Family Child Care	2005	2009	2014
Programs	7	12	5
Total Slots	54	95	43
Infant Slots	12	22	8
Preschool Slots	27	50	28
School Age Slots	15	23	7
Shelburne Children Enrolled	28	36	N/A

According to Child Care Resource, the decline in home-based care may be attributable, at least in part, to incentives created by Act 62. Act 62, which took effect in 2008, expanded access to public funding for preschool education through private programs. As children who are enrolled in family child care turn three, parents often consider enrolling them in a center-based program. Act 62 as currently implemented increases the incentive to change enrollment because the funding gives participating centers the resources to offer tuition discounts. While family child care programs can also participate, for these settings, the funding is more likely to cover the additional costs required by Act 62, leaving little or no funding for tuition discounts.

Summer and school-vacation options for care include the Y's Guys at Shelburne Community School, which provides both vacation and summer options. In addition, there are a variety of weekly camps offered through the Shelburne Recreation Department. Furthermore, there are approximately 8 private day camps offering programs of various lengths.

CCR staff also report that between January 8th, 2013 and January 8th, 2014, sixteen Shelburne families with 24 children contacted Child Care Resource looking for child care. The majority of families (15/16) were interested in care in Shelburne. South Burlington (16/16) was frequently included in their search as well.

Of the children:

- 8 were infants
- 6 were toddlers
- 10 were preschoolers

Of the 16 families who called, 3 called back more than once for more referrals due what CCR classifies as a "difficult search." Two of those three families inquiring with CCR were searching for care for a child under the age of 2. The other was searching for preschool care.

As a function of their larger size, child care centers offer a wider range of services than do home-based providers and are more heavily used. High demand for slots at child care centers means fewer slots go unused. However, home-based care is also popular. The larger number of available slots may reflect the greater ease with which operators of home based childcare centers are able to enter the marketplace and open for business. Traditionally, some of the key issues facing families seeking child care include the availability of services for infants, after school programs, and services in the summer. Some of the key issues facing operators of child care programs include the need for financing, workers, and worker training.

According to *Guidelines for Addressing the Vermont Child Care Planning Goal*, options for financing include using Average Daily Membership (ADM) funds from the State of Vermont, collaboration, and working with local banks seeking to meet the requirements of the Community Reinvestment Act. In addition, towns can work to improve the child care infrastructure by developing child care needs assessments and inventories, addressing regulatory barriers, and accessing federal and state grant funds. Another possible

Community Facilities, Utilities, and Services

source of funding is the Child Care Loan program operated by the Vermont Community Loan Fund (VCLF). As noted on the VCLF web site, VCLF makes loans to Vermont child care programs that:

- Operate under the regulations of the Vermont Child Care Licensing Division
- Are licensed centers and registered and licensed homes
- Are center-based and home-based programs that are in the process of becoming licensed or registered

Acceptable uses of awarded funding include the following:

- Improvements to meet Vermont Core Standards
- State regulatory requirements
- Improvements to meet ADA accessibility standards
- Renovations or additions to improve programs or increase capacity
- Purchase of equipment and materials to improve quality of service

More information about the program is available at <http://www.investinvermont.org/borrowers/child-care>.

It should be noted that day care centers, whether small, home-run facilities or larger schools, are listed as either permitted or conditional uses in all zoning districts in Shelburne and should be encouraged in appropriate and safe places so as to provide quality child care options to the residents of the Town.

b. Elder Care.

Care for the elderly is provided in many forms by local organizations dedicated to serving our seniors. The Champlain Valley Agency on Aging acts as a coordinator for services available in the area. These include home delivered meals, congregate meals, transportation for those unable to provide it themselves, legal services, an advocacy program and information and referral services. Home care and hospice services are provided in Shelburne by the Visiting Nurses Association. Care for the elderly is provided by several Shelburne retirement, continuing care, and nursing homes including the Arbors, a facility for those with Alzheimer's Disease, the Terraces, a retirement facility, Wake Robin continuing care retirement community, and Shelburne Bay Senior Living on Shelburne Road, at the site of the former Burlington Drive-In.

c. Other.

The Town of Shelburne makes annual contributions to a number of agencies in the area that provide social services to Shelburne residents. These include Women Helping Battered Women, Vermont Children's Aid, The Lund Family Home, Project Home, Chittenden County Court Diversion, Howard Mental Health, Champlain Valley Agency on Aging, the Committee on Temporary Shelter, and Chittenden Community Action Agency. Shelburne is also fortunate to have a food shelf organized and staffed by Shelburne volunteers which provides food to a number of Shelburne families in need.

d. Future.

As the Town of Shelburne plans for the future it is important to remember that social services also take the form of community activity centers, intergenerational activities, and community festivals and celebrations. Social services in all forms provide the means for healthy citizens to contribute to, and become part of, healthy communities. The creation of a centrally located intergenerational facility was one desirable project identified in previous versions of the Plan

12. Recycling and Solid Waste

The proper disposal of the solid waste generated by Shelburne residents and businesses is a pressing issue. It has been many years since Shelburne disposed of its solid waste in a Town-owned dump within its borders. Shelburne's solid waste is now hauled privately from the town to the Chittenden County Solid Waste District facility in Williston. According to the previous version of this plan, private truckers make their first pickups in Shelburne and likely make stops in other localities before emptying their trucks in Williston. Consequently, it is difficult to estimate how much of the landfill's waste is contributed by Shelburne.

The Chittenden Solid Waste District (CSWD), of which Shelburne is a member with 17 other Chittenden County communities, is working towards the resolution of solid waste disposal matters. Formed in 1987, the CSWD's purpose is to work collectively to provide for the county's efficient, economical and environmentally sound management of solid waste. Other solid waste matters that the CSWD is involved with that affect Shelburne include recycling, education, sludge and septage disposal options and the development of a solid waste management plan. Shelburne should continue to actively participate in and utilize the services of the CSWD to address its solid waste disposal needs.

As noted on the organization's web site, CSWD partners with local and state organizations to offer a variety of community programs that have an end goal of saving energy, reducing waste and minimizing the carbon footprint of a community—including the town offices. Community Grant Opportunities offered by CSWD include Community Waste Reduction Grants and a Community Cleanup Fund.

B. TRENDS AND ISSUES

The paragraphs above describe recent changes in the level of demand placed on public facilities and services in Shelburne. Associated with these changes in demand has been a sustained increase in the cost of maintaining facilities and in providing public services. As shown in Table 21, the total expenditures associated with the operation of the Town's facilities and services have grown from \$4.28 million in FY 2002 (2001-02) to \$6.56 million in FY 2011 (2010-2011), or by 53 percent. Some of the increase is as a result of growing debt service. Several significant capital projects were completed in this period, including the Town Center, recreation fields, sand/salt storage shed and bike/pedestrian paths/sidewalks. The town took advantage of available grants to partially fund several of these projects. Excluding costs related to debt service, expenditures have grown from \$3.75 million in FYE-2002 to \$5.97 million in FYE 2011, or by 59 percent. A portion of this increase was offset by revenues from sources other than property taxes.

Community Facilities, Utilities, and Services

Table 22. Town of Shelburne General Fund Expenditures											
	FYE 2001	FYE 2002	FYE 2003	FYE 2004	FYE 2005	FYE 2006	FYE 2007	FYE 2008	FYE 2009	FYE 2010	PRELIM. FYE 2011
SELECTBOARD	13,072	14,042	14,446	14,639	16,433	17,775	18,126	17,492	22,484	22,176	23,551
LEGAL	60,462	87,578	30,546	130,018	162,475	95,822	104,951	76,339	95,548	180,557	45,917
TOWN MANAGER'S OFFICE	163,624	100,629	98,491	104,747	110,738	110,888	117,288	121,837	124,958	129,696	131,872
ELECTIONS	13,520	3,969	16,918	9,865	12,748	2,030	10,226	3,342	22,144	2,610	13,732
FINANCE/INSURANCE	172,622	216,735	243,176	253,865	270,397	283,466	314,945	300,188	325,098	345,026	350,881
TOWN CLERK/TREASURER	105,985	109,541	124,387	130,575	140,849	124,136	131,461	133,009	130,773	142,298	163,795
PLANNING/ZONING	96,130	104,204	135,202	141,984	139,622	140,945	139,845	172,781	138,451	148,531	144,249
ASSESSING											
ASSESSING OFFICE	86,949	73,532	78,355	75,730	85,834	80,907	83,042	88,111	64,278	65,288	71,243
BLDG&GRNDS/OFFICE OPERATIONS											
TOTAL BLD&GRNDS/OFFICE OP.	100,847	-	-	232,980	260,649	277,126	282,355	336,769	305,649	306,659	304,705
OFFICE OPERATIONS	27,868	87,963	75,052	66,872	66,877	83,409	78,044	106,623	78,794	86,189	74,679
VC UTILITIES/MAINT	28,207	151,904	155,200	166,108	193,772	193,717	204,311	230,146	226,855	220,470	230,026
POLICE	611,657	621,064	720,267	759,077	860,525	864,227	890,645	985,418	1,056,651	1,128,590	1,174,588
FIRE	82,082	84,747	77,575	117,325	230,633	125,049	110,103	160,055	152,782	112,223	109,206
PUBLIC SAFETY/DISPATCH	229,701	219,589	206,929	219,658	228,026	227,883	257,223	288,609	310,952	333,711	360,231
HIGHWAY											
TOTAL HIGHWAY	687,348	815,164	798,795	726,183	816,065	904,580	906,091	1,178,496	963,297	973,482	971,619
CAPITAL PROJECTS	38,807	25,920	70,052	39,136	79,524	110,945	70,395	90,649	48,496	11,690	13,201
SIDEWALK CONSTR. & MAINT.	10,000	123,256	66,609	20,491	19,667	28,731	25,476	59,945	11,911	5,925	
PUBLIC WORKS/STORMWATER (1)											
TOTAL PUBLIC WORKS					82,567	551,157	283,601	218,055	467,649	354,297	162,103
STORMWATER						483,488	200,813	21,068	51,361	119,517	20,946
PED/BIKE PATH PROJECTS								102,481	59,809	158,579	4,671
HEALTH/SOC. SVS	27,335	31,808	32,050	32,461	32,707	35,202	35,789	36,806	37,599	37,648	30,235
RESCUE	70,740	82,685	64,156	89,307	182,520	65,615	127,179	182,626	336,386	224,671	211,938
CEMETERIES	26,944	27,082	30,106	31,238	33,135	34,803	34,496	33,315	32,708	31,946	36,742
RECREATION	137,441	151,192	199,577	175,298	180,652	177,147	197,855	205,162	216,517	218,991	245,722
HARBORMASTER (2)					25,252	19,531	22,697	27,909	19,412	33,073	24,805
LIBRARY	101,667	113,993	138,425	144,635	162,496	170,733	166,141	188,076	199,439	202,790	224,614
DEBT PMTS	245,523	526,432	618,714	594,678	581,818	575,540	645,745	632,609	631,831	580,298	596,540
INTERGOVERNMENTAL	101,845	100,102	105,751	124,903	117,601	122,662	132,918	147,021	160,806	167,770	173,773
EMPLOYEE BENEFITS	388,619	425,428	485,244	532,807	581,095	639,746	698,229	745,624	833,273	848,507	934,514
MISC. / COMMUNITY IMR.	42,792	130,330	74,938	112,321	81,840	83,416	111,569	56,557	50,971	110,234	54,969
VILLAGE SCHOOL PURCHASE				300,000	200,000						

The Town's capital budget and program has been prepared in anticipation of meeting future needs over the next six years. Under the version adopted by the Selectboard in 2011, the capital budget and program proposes \$12.8 million of general fund projects, \$1.17 million for water department projects, and \$745,000 for wastewater (sewer) projects.

C. IMPLICATIONS

As noted in the Vermont Municipal Planning Manual, community facilities and services are provided by the municipality (or available within the municipality) for the health, benefit, safety, and enjoyment of the general public. However, they also can have a significant effect on the municipality's ability to grow in an orderly and healthy way.

On one hand, adequate, well-maintained, and efficient services enable homes, businesses, and public places to be accessible and have safe water supplies, sanitary waste disposal, and necessary governmental services. On the other hand, if facilities are at capacity, further development may strain them, causing financial burdens and environmental problems. If facilities are inadequate, they may prevent the municipality from adequately meeting existing needs and accommodating desirable growth. If they are oversized and underutilized, they may encourage unplanned growth.

Experiences in Shelburne, other Chittenden County towns, and in documented cases in planning literature, indicate that once certain services—particularly sewer and water—have been extended into a rural area, development is more likely to occur and occur at a faster rate along the extended lines. Service lines are an important part of the Town's growth and their expansion should be carefully planned and guided by the Plan.

One planner who has commented on strategies for linking land development with the availability of public facilities and services, Eric Damien Kelley, advises communities that they should not build new public facilities just because they can. All growth is not created equal, he notes, and communities should build only those facilities that makes sense given the vision of the community. Towns can direct future growth through numerous public investment policies and, in the process of doing so, set a positive example for private developers and property owners. According to the publication *Community Rules: A New England Guide to Smart Growth Strategies*, such policies can include:

- Establishing water and sewer service areas to limit these utilities to land within the boundaries of the town's growth center;
- Adopting a sewer allocation ordinance to allocate sewer pipe and/or sewage treatment capacity in a way that favors certain uses and development sites consistent with the town's growth objectives;
- Adopting policies precluding the construction of new streets or roads in areas where, pursuant to the town's plan, additional growth is not desired; and
- Requiring public buildings to be located in the town center unless no feasible alternative is available.

IX. EDUCATION

A. PROFILE AND ANALYSIS

It is the mission of the Shelburne School District to ensure that each child investigates, masters and applies the knowledge, skills, values and behaviors necessary for lifelong learning and meaningful participation in a global society. The program to achieve this success has many elements. Three of the most significant elements are: outstanding curriculum; superior faculty and staff; and a safe and stimulating learning environment to support the diverse needs of every student. The School Board believes that a successful Shelburne Community School (SCS) is a cornerstone of a strong community and enables students to excel in high school. The Board's vision is to continually improve the local education system while recognizing a fiscal responsibility to the taxpayers of Shelburne. The Board feels strongly a basic foundation necessary to achieve our goal is to provide a facility that provides the space and flexibility to support the constantly changing curriculum needs and student enrollment.

1. Administration

Shelburne contains a public school district and is a member of the Chittenden South Supervisory Union (CSSU), as are the town school districts of Charlotte, Hinesburg, St. George and Williston which send their students to Champlain Union High School (CVU) which is also a member of CSSU. The Superintendent's office of the Supervisory Union provides centralized services such as transportation, finance support, technology support, certain special education services, purchasing etc to the Shelburne School District and its pre K-8 elementary school (SCS). The Shelburne School District has a school board of five elected Shelburne citizens. The Shelburne School Board, working with the administration provides school policy, goals, financial control, approval for personnel issues, plans for the future of SCS and serves as a liaison between the school and the community. The local Board has pre K-8 budget/education property tax impact responsibility and the CVU Board has grade 9-12 budget/education tax impact responsibility. Overall Shelburne education property tax outlook tax reporting is currently handled by the Shelburne Board. The Shelburne School Board also appoints three of its members to represent the Shelburne School Board on a central CSSU Board.

2. Facilities

In 1993 the Village pre K-5 and Middle Schools were consolidated into an expanded facility on Harbor Road. The rated capacity of this building is 750 students, with a October 2013 enrollment of 762 pre K-8 students. Most Shelburne students move on to attend Champlain Valley Union High School (CVU) in Hinesburg for grades nine through twelve. CVU has an estimated capacity of over 1400 students. In October 2013, there were approximately 1263 students enrolled.

3. Enrollment

Since 2000, there has been a slow decline in K-8 enrollment. SCS enrollment is expected to be flat for the foreseeable future. Enrollment at CVU appears to have peaked in 2009-2011 and is projected to decline gradually for the next several years. . Table 22 shows recent historic enrollment data and also projected enrollments for both the Community School and Shelburne students attending CVU. These numbers are checked regularly in relation to other growth trends to assess their accuracy and to help in future facility planning.

Education

Table 22. Student Enrollment History and Projections

Champlain Valley Union High School (Grades 9-12)		
Year	Total # of Students (Dec)*	Shelburne Students
2000-01	1171	305
2001-02	1216	321
2002-03	1269	350
2003-04	1310	360
2004-05	1346	380
2005-06	1361	360
2006-07	1355	352
2007-08	1362	369
2008-09	1352	363
2009-10	1385	383
2010-11	1322	373
2011-12**	1316	382
2012-13**	1264	364
2013-14**	1229	343
2014-15**	1256	340
2015-16**	1206	310
2016-17**	1221	335
2017-18**	1222	325
2018-19**	1196	319
2019-20**	1198	330
2020-21**	1195	320

Shelburne Community School (Grades K-8)	
Year	# of Students (Feb)*
2000-01	884
2001-02	873
2002-03	870
2003-04	845
2004-05	831
2005-06	806
2006-07	781
2007-08	774
2008-09	750
2009-10	737
2010-11	741
2011-12**	740
2012-13**	748
2013-14**	741
2014-15**	735
2015-16**	747
2016-17**	726
2017-18**	729
2018-19**	729
2019-20**	729
2020-21**	718

* Includes tuition and other ** Projection

Source: Shelburne School Board and William Smith, Public Policy Demographics

4. Financing

Act 68 requires sharing of property tax collections across the state via deposits to the state's Education Fund. Shelburne's property tax is dependent upon both local spending on education as well as statewide education spending. The other major factor that will directly impact Shelburne taxes is the CLA (common level of appraisal). The CLA measures the difference between assessed property values and values of actual sales and is used to equalize the value of property across the state of Vermont. The 2014 CLA is 99.7 % and the 2013 CLA was 100.2 %. Given the current economic environment it is not anticipated that Shelburne will reach the re-appraisal threshold of 80% for a number of years.

B. TRENDS AND ISSUES

1. Challenges of Declining Enrollment

Flat/declining enrollment presents different challenges than growth. The Shelburne school board is seeking to maintain high quality programs while at the same time managing a budget and a school that will require fewer employees as the number of students declines. Because the decline in student population is spread out across all grades it is difficult to manage personnel levels both in regular classrooms and in unified arts programs. The result can be class sizes that vary substantially from year to year.

The decline in enrollment is caused by a decline in the average household size and a level of new construction that has not compensated for the decline. At this time, the town views the outlook for future housing growth as modest.

2. Impact Fees

Currently, there is an education impact fee collected on all new housing to offset the cost of capital programs that are required to accommodate the student body at CVU. There are no impact fees currently being collected for SCS. The rated capacity of the Shelburne Community School as currently constructed is 750 students. The addition of the mobile classrooms increased the classroom capacity to 850 students. However, the core infrastructure (cafeteria, library, etc) remains rated for 750 students as the need for more classrooms had supplanted program space for science, art, technical education etc. This is adequate to accommodate the current student population. As enrollment is expected to continue to decline capacity seems adequate for the foreseeable future.

C. IMPLICATIONS

The quality of local education systems can play an important role in both housing and labor markets. Quality schools are frequently cited as a factor in housing-purchase and industrial-expansion decisions. The location of schools can, in turn, have significant impacts on travel patterns, energy use, and the environment.

X. ENERGY

A. SUMMARY

Energy is vitally important to everything we do. Every household and business in Shelburne consumes energy in numerous ways every day – to heat the water for showers in the morning, to cook, to drive to and from work, to light our homes and offices, to power our industrial facilities, etc.

Act 250 allows cities and towns to adopt energy plans. The Public Service Board must approve all energy generation in the state through a “certificate of public good.” In its deliberations, the PSB considers town energy plans as evidence of the community’s acceptance or disapproval of a particular project. While the energy plan is not the only consideration, a Town energy plan is thus a useful tool to guide development.

The PSB process is complex and greatly circumscribes the Town’s power to control energy generation development. However, the Town can also address the flipside: energy consumption.

This section seeks to address the most important energy issues Shelburne faces today with policies and recommended actions that will shape how the Town faces its energy future and maximize local input in the PSB process. It presents background information, as well as specific policies and recommended to achieve the goals and objectives addressed in the other volume of this Plan. It also incorporates by reference the recommendations of the local Energy Committee, which is not an official (town appointed) committee but has provided valuable assistance and information to the Planning Commission in the preparation of the plan. Finally, this plan offers means by which we can measure success.

B. TRENDS AND ISSUES

1. Conservation and Measurement

Energy, like the economy, has both a supply side and a demand side. What we do to one necessarily affects the other. Demand continues to grow, yet the resources available to meet that demand are constant or diminishing. Fossil fuels, from which we gain most of our power, are finite resources, as is the fuel for nuclear power. We must make the best use of what resources we have and ensure that new resources are not obsolete before they go online. Thus, although it cannot be the whole answer, conservation is the foundation of a good energy plan.

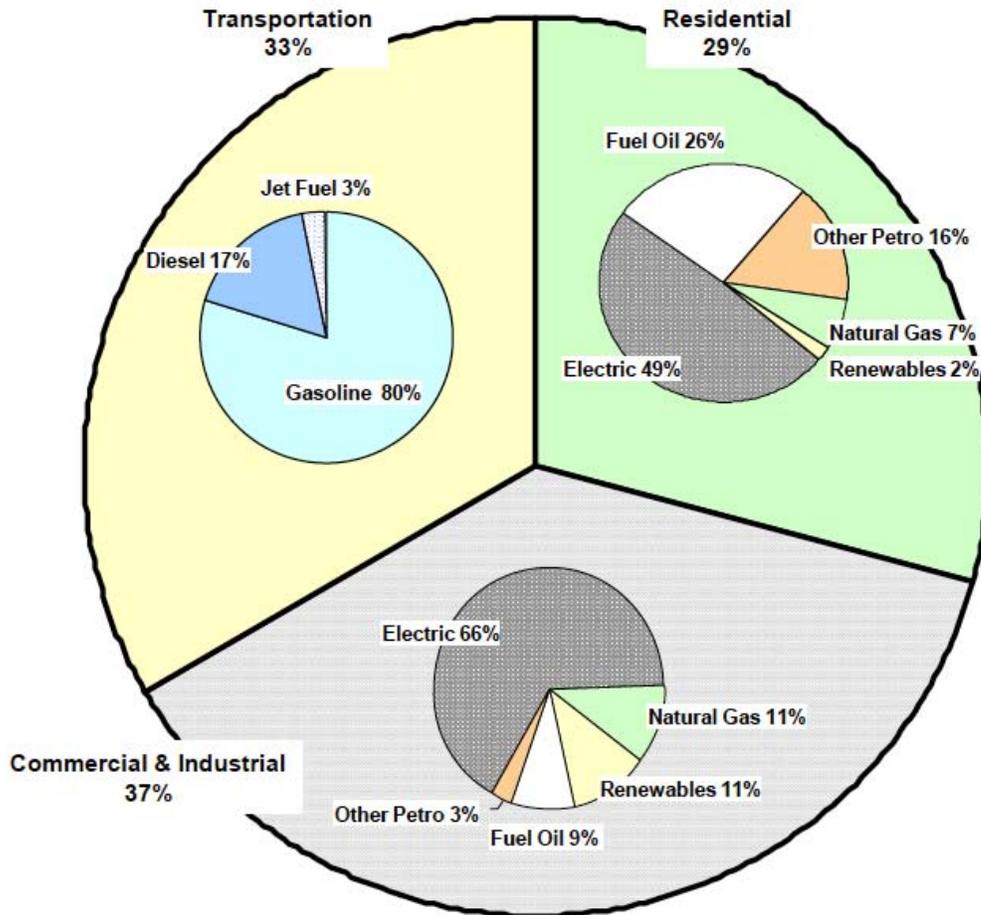
A note on units

Energy is measured in many different units, depending on the source, the use, and the country. There are BTUs, joules, MW, kWh, and so on. This document avoids such language where possible, referring generically to “energy” and “fuel.”

Energy

2. Energy Uses and Sources

Road transportation currently accounts for a third of Vermont's total energy use, while residential use accounts for 29 percent, and commercial and industrial are 37 percent.



a. Electricity

Electricity makes up two-thirds of commercial energy use and almost half (49%) of residential energy use. As such, electricity is by far the most-used energy type in Vermont. For the past decade, electricity use has remained roughly the same. Though usage has fallen in the past two years, the price of “retail” electricity has risen and is likely to continue to rise (given, among other factors, Vermont Yankee closure). On the other hand, Vermont has the lowest electricity rates in New England, and energy efficiency programs have started to decrease both usage and costs.

Electric power is distributed locally along all significant public rights-of-way. The local utility, Green Mountain Power (GMP), provides electricity to 2730 residential accounts and 848 commercial and industrial accounts (CELC 469 and GELC 379), a number that has grown along with residential and commercial development of the community. Shelburne also lies along a major segment of Vermont electrical transmission network. See Map 28.

The Town believes that a clear written community standard for aesthetics has been established through this Town Plan. All current and future projects reviewed by the PSB also must comply with this standard.

b. Transportation

Although transportation was the largest end use of energy throughout the 1980s and 1990s,⁸ it has recently been surpassed by energy use in the commercial and industrial sectors. Nevertheless, it remains a third of energy use in the state. Gasoline and diesel are the primary transportation fuels used in Vermont, with gasoline at 80 percent and diesel at 17 percent. According to the Census Bureau, more than 97 percent of Shelburne households owned a car or truck in 2000. Most households (69.5 percent) owned at least two vehicles, and 18.4 percent owned three or more. The average Shelburne resident took 20 minutes to get from home to work. About 80 percent of Shelburne workers drove to work alone (up from 76 percent in 1990); the rest car-pooled, worked at home, walked to work, or took public transportation.

c. Fuel Oil, Propane, and Natural Gas

Fuel oil comprises 26 percent of residential energy use and 9 percent of commercial and industrial use.

A significant amount of energy in Vermont is used for space heating. Within Shelburne, several different energy sources are used for this purpose. Fuel oil was the heating fuel of choice for roughly half (51.6 percent) of all Shelburne homes in 2000. Roughly one-fifth of homes (19.8 percent) were heated by propane, while one of every six homeowners (16 percent) heated with natural gas. Only 2 percent of homes are heated by wood or of other forms energy.⁹

Vermont Gas provides natural gas to a growing number of Shelburne homes and businesses. Natural gas has become much more widely available in Shelburne as Vermont Gas has expanded its service territory south of the LaPlatte River Bridge. Since 2002, the size of the Vermont Gas service area has roughly doubled.

Energy use for space heating was relatively close to that used for road transportation through the early 1980s, but subsequently stabilized and in some years declined while road transportation use grew substantially (by about 40% between 1985 and 1994).

⁸ *Fueling Vermont's Future, Comprehensive Energy Plan, Volume I - Summary and Recommendations, July 1998*, "Road transportation has been the largest end use of energy in the state since 1977."

⁹ It should be noted that the types of energy used for heating can change relatively quickly. In 1990, only about 5 percent of Shelburne households used natural gas to heat their home; a decade later that percentage had tripled.

Energy

Water heating, currently the next largest end use, has grown by 17% in energy consumption since 1976, while process heat for industrial purposes (the fourth largest end use) has declined by 14%.

d. Renewable Energy and Other Consumption

As the cost of non-renewable energy increases, interest grows in renewable resources, such as wind, solar, wood, and hydropower. Group net-metering, government incentives, and a nascent industry have made private wind and solar especially viable options over the past decade.

According to regional-scale wind analyses completed for the Vermont Department of Public Service, the potential for wind energy in Shelburne is greatest near Lake Champlain and in a north-south belt running along Dorset Street. Significant public policy questions have been raised by recent proposals to develop wind energy in Shelburne. As with electric transmission facilities, many of these questions pertain to the possible aesthetic impacts of wind turbines and the towers on which they rest. Other questions relate to concerns about the safety of turbines, wildlife impacts, and secondary impacts and benefits.

Public policy issues related to solar energy often relate to aesthetics, historic preservation, and the need to preserve solar access in densely-settled areas, while public policy issues related to the burning of wood generally focus on air quality concerns and public safety (i.e., fire risk associated with unsafe installation and operation). The Town of Shelburne will look to its Energy Committee to provide guidelines for the proper balancing of these concerns.

3. Trends

Access to cheap energy in the form of nuclear-, hydro-, and coal-generated electricity, gasoline and diesel, and heating oil and natural gas has changed the way Vermonters live. Once largely self-sufficient, we are now reliant on outside sources of energy. Although this access has come with great benefits and prosperity, it is not without its costs.

Statewide, total energy use is expected to increase 54 percent between 1990 and 2015. This increase stems largely from growth in transportation energy use due to increasing vehicle miles traveled and dispersed land use patterns, and growth in commercial and industrial energy use due to projected economic output from these sectors.

Unfortunately, we may now count among those costs an increasing economic impact on Vermont citizens. The price of oil and electricity keeps rising. With the rise in those basic energy costs, food and goods that travel from around the country and across the world increase in price. Further, at least a third of the State's current energy demand is driven by in transportation, and transportation costs are expected to increase at rates faster than other sectors of the economy.

The price of new energy-saving and generating technologies is coming down, and Vermonters are rediscovering the value of locally-produced goods and energy supplies, which keep money in Vermonters' pockets while often delivering better products. The federal and state governments, as well as private organizations, are offering many incentives to conserve and generate energy, too.

4. Impacts

The impact of Shelburne energy use is wide-ranging. For example, since much of the energy consumed in Vermont is derived from fossil fuels, energy consumption produces air emissions of pollutants that contribute to a variety of potential human health and ecological concerns. Growth in demand for electricity in Chittenden County – to which Shelburne has contributed – has also resulted in proposals to significantly increase the size of power lines that run through the town. Energy consumption also affects the housing affordability. Indeed, the average Shelburne household probably spends between \$1500 and \$2500 each year on energy use in the home (excluding transportation). Adding in transportation costs further raises the cost of living in Shelburne. Moreover, increases in vehicle miles traveled can also potentially adversely affect pedestrian safety, road maintenance budgets, and our sense of community. For these reasons and more, there are significant benefits from improving the efficiency of our energy use.

The way our Town grows will affect our energy usage. The denser the development, where people can walk or drive short distances between home, work, shopping, and services, the less energy is needed for transportation. This not only results in less money spent on transportation for gas, insurance, and maintenance, but also keeps taxes low. Fewer roads means less salt, sand, and plowing in winter, and fewer potholes in spring. Greater density means schools closer to where children live, lowering busing costs. Greater density means more vibrant communities, with more entrepreneurship and greater opportunity for positive economic development.

On the other hand, in sprawling communities with little density, both travel costs and maintenance costs are high. Moreover, more time spent in the car means less time doing other, more productive activities. Preservation of “rural character” is a top priority of many Vermonters, and many often equate ruralness with lack of density. The truth, however, is just the opposite: Vermont has a long tradition of relatively dense town centers surrounded by productive farms and forestland. This settlement pattern made good economic and fiscal sense. Sprawl, on the other hand, results in greater municipal expenditures than tax revenue, less affordable housing, and fewer jobs, as commercial development is displaced

Many now recognize the benefits of Vermont’s traditional settlement pattern – fairly dense villages and hamlets surrounded by agricultural and forest lands. These benefits include health, energy savings, and economic resilience. While the rest of the country thinks this is a new idea, Vermonters can proudly say, “We’ve always done it that way.”

Shelburne has taken a step towards reinvigorating this land-use pattern through its Village Plan, which this energy plan seeks to support.

3. Energy Planning

There are a number of ways that Shelburne’s plans for the future can affect energy use, particularly the efficiency of its use. These are put forth in Volume I of this Plan. Vermont’s planning statute indicates that energy sections of Town plans are to include “an analysis of energy resources, needs, scarcities, costs and problems within the municipality, a statement of policy on the conservation of energy, including programs, such as thermal integrity standards for buildings, to implement that policy, a statement of policy on the

Energy

development of renewable energy resources, a statement of policy on patterns and densities of land use likely to result in conservation of energy.” In the future, Shelburne may endeavor to complete a more detailed analysis of energy resources (what they are and where they are located), energy needs, energy scarcities, and costs and problems than is contained in the present version of the Town Plan.

C. IMPLICATIONS

As noted in previous state energy plans, a sustainable energy supply is one that “meets today's energy needs without compromising the ability of future generations to meet their needs or shifting the costs of current energy use to future generations.” Sustainable energy does not increase options for the present generation by jeopardizing options for or transferring the costs to future generations. Instead, sustainable energy use is economically, environmentally, and socially viable on a long term basis. An environmentally sound energy supply is one that avoids or minimizes environmental degradation. All forms of energy production and use have some negative effects on the environment. An environmentally sound energy supply is one that minimizes those negative effects through all stages of production and use while remaining consistent with Vermont's other energy goals.

The high and rising costs of fossil-fuel energy, technological advances lowering the cost of conservation and alternative means of generation, and public concern make now a time of unique opportunity for Shelburne to become a leader in energy planning. The Town policies and recommended actions contained in the other volume of this plan are designed to grasp this opportunity, ensuring Shelburne an environmentally and fiscally sustainable future while meeting the challenges of the present

Clearly, the implications of energy on community planning efforts are very broad. Some of those implications have been summarized in previous state energy as follows.

Land Use, Development, and Sprawl. Facilities related to energy use and production can degrade land resources through physical disturbance and contamination. In Vermont, land is used for a wide range of energy-related purposes including transmission and distribution lines, substations, gas pipelines, highways and parking lots, fuel storage, and electrical generation.

Land use development and energy consumption are tightly related. A dispersed pattern of land use and sprawl are wasteful of both land and energy resources. Locating jobs, residences, and other facilities in compact growth centers that can be served by mass transit and carpools can reduce the consumption of gasoline, the need for additional highways and parking lots, and the need for new infrastructure, including electric transmission lines. Vermont's Land Use Development Law (Act 250) and the Municipal and Regional Planning and Development Law (Act 200) can contribute to better land use and more energy efficient development.

Recreation and Scenic Landscapes. Energy use affects both recreation opportunities and Vermont's scenic character. For example, hydro projects commonly threaten wild rivers and back country used for wilderness recreation. Such projects can also reduce populations of migratory species important to hunters and wildlife observers. Non-sustainable use of forests for fuelwood production can diminish their value as a tourist and recreation resource. Emissions from sulfur dioxide and other pollutants reduce visibility in Vermont in the summertime by as much as 66%

compared to unpolluted levels (Vt. ANR, 1991, 23). Visibility impairment, as well as acid damage to lakes and forests, affects scenic views and recreation in the mountains.

The state's scenic landscapes can also be affected by energy-related facilities and activities. Vermont's scenic character is defined by traditional, compact townscapes and open rural landscapes; many Vermonters are proud of this character and benefit from the tourism it attracts. Energy-related facilities such as transmission lines, smokestacks, pipelines, windmills, and highways can significantly change the aesthetic character of the landscapes. Construction activities associated with energy use can also have a major impact on the aesthetics of neighborhoods for extended periods.

Efficient energy. Efficient energy production, delivery, and use minimizes waste and therefore requires fewer resources. Energy efficiency does not reduce comfort or convenience; it enables us to meet the same needs with less energy and environmental damage.

Affordable energy. Affordable energy meets consumers' energy needs in an adequate manner at the least total cost to society, giving special consideration to low income groups. For low income groups, energy affordability means that individuals' energy needs are met adequately without compromising other basic needs.

XI. PLAN COMPATIBILITY

Although the Comprehensive Plans for adjacent municipalities have changed since the major updating of Shelburne’s Comprehensive Plan in 2007 (e.g., St. George in 2007, updated in 2012; Charlotte in 2008, updates in process; Hinesburg in 2011, updates in process; Williston in 2011, and South Burlington in 2011, updates in process), there is ample evidence that Shelburne’s Plan continues to be compatible with policy documents and land uses in those areas.

A. CHARLOTTE

The Town of Charlotte is a rural community with a low population density located to the south of Shelburne. Most of Shelburne’s southern boundary is shared with Charlotte, and Route 7 extends from Shelburne into Charlotte to the south.

The Charlotte Town Plan makes clear Charlotte’s desire to keep Route 7 from becoming a commercial strip. To that end, the Charlotte Plan includes a “Route 7 Scenic Overlay” along the highway from the shared municipal boundary to a point south of Church Hill Road. The Plan also notes the need to avoid development pressures along its northern boundary with Shelburne. Historically, Shelburne has wanted to keep Route 7 relatively free of development south of the Shelburne Village, so that a gateway of open space is maintained.

In Shelburne three land use designations—Conservation, Rural, and Residential—lie along the shared boundary. The Rural District, which occupies much of land along the Charlotte/Shelburne border does allow limited types of commercial development but only with sizable setbacks, open space requirements and clustering to protect views. The Residential zone, extending a short distance west from Shelburne Road is generally developed in a lower density fashion so that no abrupt transition is experienced as the town line is crossed. Areas with a Conservation designation are compatible with Charlotte’s rural designation.

Shelburne has no plans to extend public water or sewer toward the Charlotte town line. Any change in policy by the Town of Shelburne would be incompatible with the Plan for Charlotte.

Finally, as noted in Charlotte’s 2008 Plan, Shelburne’s goal and objectives of the Natural and Visual Resources and Land Conservation have been consistent (at least historically) with Charlotte’s goals.

B. HINESBURG

The Town of Hinesburg lies southeast of Shelburne. As noted in prior plans, the eastern fifth of Shelburne’s southern border is shared with Hinesburg. Two land use designations—Conservation and Rural—lie along the Shelburne side of the shared boundary. Shelburne’s Rural and Conservation designations along the border are believed to be consistent with the designation in the Hinesburg Town Plan. Indeed, as noted in the new Hinesburg Plan, Shelburne Plan “emphasizes the rural and agricultural landscape, including conservation areas, near its border with Hinesburg. Both the future land use and the overall goals and objectives are compatible with Hinesburg’s vision for this area.

Historically, a specific area of agreement between the two plans relates to transportation. Shelburne’s goal to protect the rural character of areas along Vermont Route 116 is consistent with Hinesburg’s objective to “work with surrounding towns to ensure that future land uses do not result in traffic that adversely impacts

Plan Compatibility

the goals of this plan” (Hinesburg 2003 Town Plan, p.58). Hinesburg’s 2011 Plan is somewhat less focused on this issue. The 2011 Plan includes a recommendation to “Develop a comprehensive road plan for the Town that recognizes the existing multi-use functions of roads, build out analysis for Hinesburg and the surrounding towns and projected changes in Hinesburg’s zoning districts to guide and complement future development.” (p. 64).

C. ST. GEORGE

Shelburne’s neighbor to the east is St. George, a rural and geographically small town. Shelburne’s Rural designation for the eastern sections of the town is believed to be consistent with the St. George Municipal Plan. In Shelburne, two land use designations—Rural and Conservation—apply to lands along the shared boundary. In St. George, a single designation (Rural) applies

It should be noted that the St. George Plan historically has included designation of a village center district abutting the Shelburne town line east of Route 116. However, lands in St. George along the shared boundary no longer carry this designation. Lands further east do continue to carry the designation. The Village center area has been planned as a compact, mixed use village, similar in concept to Shelburne’s village.

Development of the St. George village center could intensify development pressure on land in Shelburne along Route 116. Public water and sewer are not currently available in St. George, but are planned, Shelburne would not support the extension of public water and sewer across its border with St. George.

D. WILLISTON

The short portion of Shelburne’s northern boundary lying east of Muddy Brook is shared by the town of Williston. The heavily developed sections of Williston are in its northwestern portions, separated from the developed parts of Shelburne by scenic lands and open space. The Williston Comprehensive Plan focuses development into the northwestern and central portions of that town.

A single land use designations—Rural—lies along the Shelburne side of the shared boundary, while the Williston Comprehensive Plan shows the land along its side of this border as designated for Agricultural/Rural Residential development. These designations are compatible. Although Williston contains a significant regional growth center north of Interstate 89, secondary growth precipitated by this growth center is not anticipated, as Williston’s Town Plan includes clear policies for the retention of the character of the Agricultural/Rural areas (e.g, “Rural Williston - The Town of Williston will maintain a rural character outside the sewer service area, and protect open space resources, including productive agricultural lands, open meadows, ridgelines, riparian corridors and wetlands, view corridors, and wildlife habitat.”). .

E. SOUTH BURLINGTON

The City of South Burlington is located north of Shelburne. Most of Shelburne’s northern boundary is shared with South Burlington. Although South Burlington is a mostly suburban community, some of the City’s land, particularly that east of Spear Street along its border with Shelburne, remains more rural.

South Burlington contains a large number of the region’s major employers and facilities. The University Mall and other commercial enterprises are clustered around Exit 14 of I-89, in the west central portion of South Burlington.

The Route 7 North Corridor extends from Shelburne into South Burlington. Spear and Dorset Streets and Route 116 also extend through both Shelburne and South Burlington.

Shelburne's plan is generally consistent with the current South Burlington plan (a readopted version of the City's Comprehensive Plan in place in 2006) with regard to the areas lying west of Spear Street, along the Route 7 corridor. South Burlington's Future Land Use plan designates commercial and moderate density residential uses for areas west of Spear Street and north of the town/city line. Shelburne's commercial and/or residential designations south of the town/city line are consistent with this designation. South Burlington's Plan also designates a narrow corridor immediately along the west side of Spear street for low density residential use.

The remainder of the Shelburne/South Burlington line forms the southern boundary of South Burlington's Southeast Quadrant (SEQ) which has been mostly open land. A single land use designations—Rural—lies along the vast majority of the Shelburne side of the shared boundary (a small area along Muddy Brook is designated Conservation), while the South Burlington Comprehensive Plan shows the land along its side of this border as designated for low density Residential development

It is Shelburne's goal (Vol. II, p.8) to "maintain the agricultural...and aesthetic benefits provided by Shelburne's rural lands," including those lands in the northeastern and north central portions of the town. Meanwhile, as noted in South Burlington's Plan: "The City shall promote a pattern of land use and development that respects and maintains the open and special character of the Southeast Quadrant. The City will strive to encourage well planned residential development at densities and layouts that protect and preserve large contiguous areas of open space, important natural areas and scenic views."

Previous plans for Shelburne have noted that the overall density of growth promoted in the SEQ under South Burlington's Plan (gross density of 1.2 units per acre) had the potential to reduce the desired effect of Shelburne's Plan for the northeast corner of the Town (gross density of 1 unit per five acres). Therefore, adherence to the principles stated in this goal is of paramount importance.

Shelburne does not plan to extend its sewer or water service areas to meet South Burlington's. South Burlington's proposal to establish an interchange at Hinesburg Road and I-89 may be incompatible with Shelburne's designation of the eastern section of town as rural because of the possible increase in traffic and development pressure which this change could bring.

The South Burlington Plan continues to recognize the need for the City to cooperate with surrounding towns to plan compatible uses and densities along the town/city lines. Shelburne welcomes the invitation to work with South Burlington toward achieving a solution that is consistent with both municipal goals and the goals of state statute.

It should be noted that the City of South Burlington also has adopted supplemental planning documents that should have the effect of reducing the potential for conflicts between Shelburne's land use policies and South Burlington's development goals for the south east quadrant

MAPS

Maps incorporated into the Plan are compiled as a separate document.
