
**SHELBURNE COMPREHENSIVE PLAN
2012**

VOLUME 2

**DATA, BACKGROUND INFORMATION,
AND ANALYSIS**

January 5, 2012

Table of Contents

I.	INTRODUCTION	1
II.	HISTORY	3
III.	LAND AND ITS USE	7
IV.	POPULATION	23
V.	HOUSING	35
VI.	ECONOMY	41
VII.	TRANSPORTATION	45
VIII.	COMMUNITY FACILITIES, UTILITIES, SERVICES	61
IX.	EDUCATION	87
X.	ENERGY	91
XI.	PLAN COMPATIBILITY	97

MAPS

APPENDICES

Volume I found under separate cover

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 statement of land use policy for the Town of Shelburne, the Plan directs Town efforts in land use planning and growth management, the provision of public facilities and services, environmental protection, land conservation, and economic development.

A. ORGANIZATION OF DOCUMENT

The Plan is divided into two volumes. Volume I contains the Plan’s Vision Statement, Goals, Objectives, and Recommended Actions. Volume I is the culmination of a multi-year process 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 should conform to the applicable Goals, Objectives, and Recommended Actions.

Volume II—this volume—consists of important background information and analysis. The information and analysis contained in Volume II highlight aspects of the community likely to contribute to or detract from the realization of the Vision. Text contained in Volume II is also intended to clarify, where appropriate, the meaning of statements contained in Volume I.

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 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 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.

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

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 6900 and with that the infrastructure and services to accommodate the population. 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. In modern times, Shelburne largely has moved away from a land-based economy to become a more suburban community in which residential development decisions are driven by proximity to the availability of septic/sewer disposal, potable water supply, and aesthetic desirability. 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 general area between Route 7 and Spear Street, a manifestation of the shoreline of Champlain Sea (an

Land and Its Use

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 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, in recent years, local citizens groups have become involved in tracking wildlife in Shelburne and have 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).

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.

Land and Its Use

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, subjected to restrictions against further development as a condition of development approval from the Planning Commission, or become the object of conservation easements held by third party conservation organizations for the public benefit. These lands are depicted on the Public and Conserved Lands Map (Map 11). This map reflects efforts of the Town's Natural Resources and Conservation Committee, the group 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. 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.

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

Land and Its Use

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 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: 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.

Other than the riverine gravel deposits and the undifferentiated limestone, much of the town contains sub-surface 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 is currently engaged in the effort to comply with 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. Vermont's primary wetlands legislation was enacted in 1986 ("Act Relating to the Regulation of Wetlands"). This Act directed the Water Resources Board to adopt rules for the identification and protection of those wetlands that are so significant that they merit protection. These rules, adopted in February of 1990, establish a 3-tier wetland classification system to identify significant wetlands. Only Class One and Class Two wetlands are considered significant and are protected by the Rules. The National Wetlands Inventory Maps identify the approximate location of protected wetlands.

The state wetland rules contain a list of activities that are allowed within Class One and Two Wetlands and their adjacent buffer zones. All activities not specifically listed are considered conditional uses and require a Conditional Use Determination (CUD) from the state Wetlands Office. The state can issue CUDs only when it is determined that the activity will not adversely impact the protected functions of the wetland.

Wetlands that are not identified on the National Wetlands Inventory Maps and wetlands that have been determined by the Water Resources Board to not provide functions at a significant level are considered Class Three wetlands.

As noted in the Agency of Natural Resources' Wetland Fact Sheet, "[t]he primary federal program that provides protection for Wetlands is Section 404 of the Clean Water Act, administered by the U.S. Army Corps of Engineers."

Section 404 regulates the placement of fill or dredged material into "waters of the U.S." which includes all wetlands in Vermont. Federal permits require review by the state under Section 401 of the Clean Water Act, to ensure that State water quality standards are not violated by any activity within the waters of the U.S. Eligibility for federal permits is contingent on the issuance or the waiver of a water quality certification from the Agency of Natural Resources through the Wetlands Office.

Furthermore, in towns with zoning bylaws, Zoning Administrators are required to notify the Wetlands Office of activities proposed within wetlands prior to the issuance of a local zoning permit. The Wetlands Office has 30 days to provide comments on the project to the zoning administrator.

Land and Its Use

B. BUILT ENVIRONMENT

1. Land Use Distribution

Since Shelburne was chartered in the mid-eighteenth century, the town has experienced a diverse range of development activities and patterns. Evolving from a rural community with small local serving industry to a predominantly residential community with several sizeable commercial and industrial establishments, land use patterns in the town have changed considerably over the years.

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, 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.

All together, the patterns of land use in Shelburne reflect the substantial growth that the town has experienced in recent years. The Village is the most intensely settled area, and has been for quite some time. It continues to be the "center" of the town. Commercial and industrial growth has been concentrated along Rt. 7, north of the Village. Newer residential development has taken the form of suburban subdivisions where sewer capacity was available, and large lot rural strip development along existing roads

where sewer capacity was not available. 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. The interiors of the large blocks between existing roads has remained as farmland or undeveloped land.

2. Historic and Archeological Resources

There is very clear evidence 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.

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

Land and Its Use

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. Rt. 7, Shelburne Farms is a 501(c) (3) non-profit education center, 1,400-acre National Historic Landmark and working farm dedicated to cultivating a conservation ethic by teaching the stewardship of natural and agricultural resources.

The non-profit organization founded on the historic property in 1972 is internationally recognized as a model for community-based agriculture and natural resource education. More than 120,000 people come to Shelburne Farms each year to learn in a place of natural and architectural beauty; more than 10,000 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; a four-acre market garden produces organic vegetables for an on-site restaurant and inn and local sales, and the hardwood forests produce certified lumber and 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 and agriculture education locally and beyond.

Each year from May to October Shelburne Farms opens its gates to the public to enjoy more than eight miles of walking trails, tours of the historic property from the Welcome Center and Farm Store to the Coach Barn, Breeding Barn complex, and Farm Barn – which houses the Children's Farmyard, McClure Education Center, a cheese making-operation, a furniture-making business, and the Inn at Shelburne Farms.

Shelburne Farms collaborates with community partners to host numerous cultural and educational events each year including a summer community concert series and Winter Fest - both sponsored by the Town Recreation Department; Vermont Mozart Festival concerts; Vermont Symphony Orchestra's annual July 4th concert; the Shelburne Farms Harvest Festival; and an annual art exhibition.

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 mid-October each year. The Museum's annual attendance fluctuates between 140,000 and 150,000. School tour programs are offered throughout the year and 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 throughout the year.

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.

The Center's Gallery on the Green, located in a historic Greek Revival building on the town green, which previously housed the Town's library, presents visual art and fine crafts by artists from Vermont, New England, and the United States. Artist slide talks and programs in the spoken word, film, and performing arts make the Gallery a gathering place for people of many interests. School groups are welcome to visit and to draw in the Gallery. 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 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:

Land and Its Use

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 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.

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 30 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. 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.

Very 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.

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.

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.

Land and Its Use

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 have been 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. The largest flood hazard areas 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. Lake Champlain's water level fluctuates between a low of approximately 93.5 feet above sea level and a high of 102 feet above mean sea level. The Flood Insurance Rate Maps also delineate areas subject to flooding due to high lake water level. 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 Flood Insurance Rate Maps. Other flood hazard areas are known to exist but are not mapped. Typically, such areas are identified by engineering consultants in consultation with the Flood Plan Management section of the Vermont Agency of Natural Resources. It should be noted that the federal government solicits changes or additions to flood hazard area maps once every two years. Elevation mapping that will be completed for the Chittenden County Metropolitan Planning Organization in the Fall of 2004 may provide the data needed to support a request for comprehensive changes to flood hazard area mapping in Shelburne.

2. Steep Slopes

Areas with steep slopes, which sometimes are associated with unstable soils, are difficult and costly to develop because doing so requires developers to defy gravity. Developments located on steep slopes can in fact threaten public safety. Such negative impacts may be caused by erosion, soil slumping or collapse, and, occasionally, groundwater contamination.

As shown on the Steep Slopes Map (Map 18), steep slopes (> 15 percent) and very steep slopes (> 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.

F. TRENDS AND ISSUES

As noted in several passages above, the trend in land use in Shelburne over the past 30 years has been away from a rural agriculture character and toward suburbanization. The town has witnessed an extraordinary 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 many Shelburne residents.

As part of the revision of the Town Plan, the “Shelburne 2003 Community Survey” was conducted by the Planning Commission in collaboration with the University of Vermont’s Center for Rural Studies (“the Survey”). Response to the Survey was regarded as both sufficiently high and representative of the Shelburne community to render it reliable. The Survey contained several questions related to the future of land use in the Town. Among them, respondents ranked “Protecting open space and natural resources” as the most important issue facing the town in the next five years. In addition, respondents to the Survey overwhelmingly agreed that, in making regulatory decisions, the town should make an effort to protect scenic vistas, lake shore, streams, wetlands and ponds, wildlife habitats, agricultural lands, open space, historic sites and structures. Finally, a clear directive to “cluster” development in the outlying areas of town and in areas of natural and agricultural resources was evident from Survey results. These opinions and the strength with which they were expressed reflect an imperative to protect agricultural, open and natural land from despoilment by irresponsible development.

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. This sentiment is evident too by the emergence of groups like “Shelburne Citizens for Responsible Growth”—an organization formed in the late 1990’s to become educated in the local land development regulatory process and to offer input on development proposals of particular impact upon the Town’s undeveloped areas—and ShieldUs—which formed in response to concerns related to the proposed VELCO transmission line.

In recent years, 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.

These “grassroots” initiatives clearly reflect a growing concern that Shelburne not allow itself to grow irresponsibly and particularly at the further expense of our natural, open, scenic and agricultural environment.

G. FUTURE/IMPLICATIONS

Clearly, the desire of the Shelburne community to not degrade the natural and cultural environment of the Town and to conserve remaining open, scenic and agricultural land will be met by the pressure to continue to build houses to meet the demand of a growing Chittenden County. As this conflict may be inevitable, the Town must be prepared to meet it with land development regulations that encourage responsible development in locations designated as “growth centers.” Growth centers which can accept it without adverse impact. These are areas such as that designated as the Town’s sewer service area under the Sewer Capacity Allocation Ordinance.

The 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

Land and Its Use

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 6,944 residents reported in the 2000 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. The greatest decade of absolute 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.

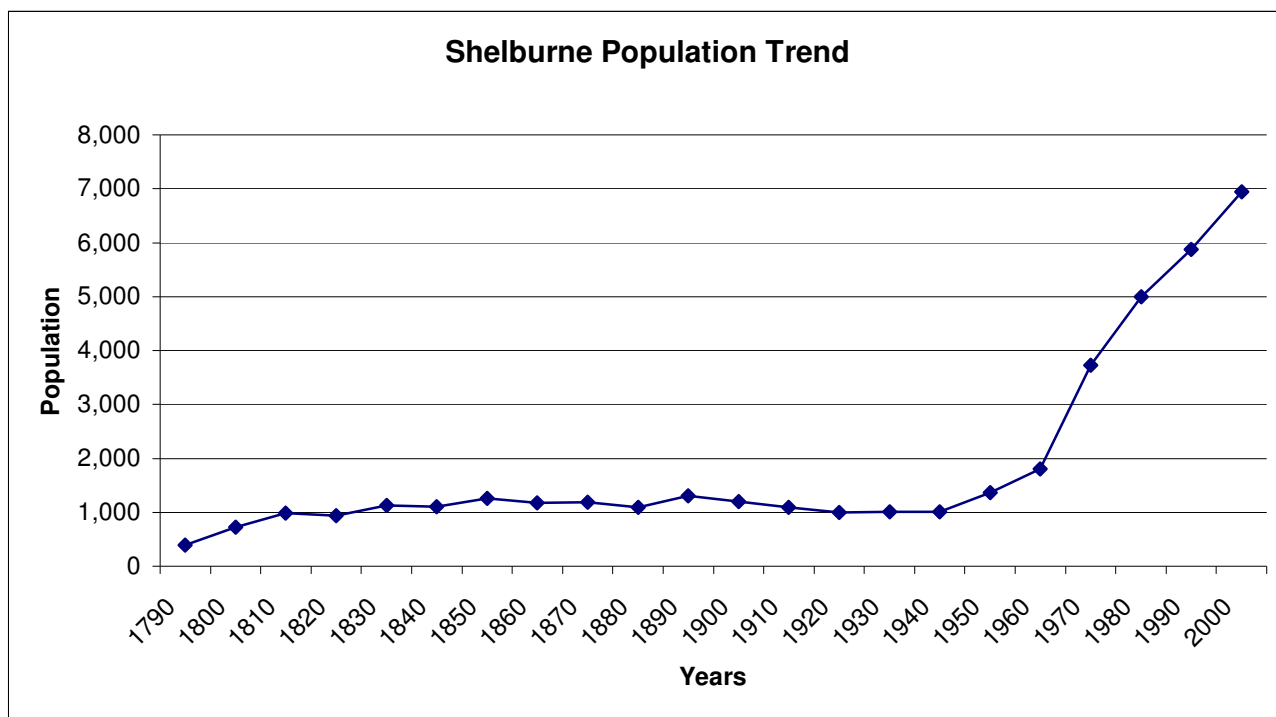


Figure 1. Shelburne Population History 1790-2000

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

Shelburne’s population has 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. Annual growth rates appear in the 1996 Shelburne Town Plan and many other planning discussions. 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 estimates, since 2000, the rate of growth dipped to roughly 11 persons per year. However, over the long term (1950 to 2005), Shelburne’s population growth has averaged over 102 persons per year.

Table 1. Population Totals, Absolute and Percent Change for Shelburne, Chittenden County, and Vermont State, 1940 to 2000

Decade	<i>Shelburne</i>			<i>Chittenden</i>	<i>Vermont</i>
	Total End of Decade	Change over Decade	Change %	<i>County</i> Change %	<i>State</i> 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

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, of course, is shared with the rest of the state), the City of Montpelier, Chittenden County, and the state of Vermont. Strictly speaking, adding a county and a state to the analysis may be misleading because these are civic units quite different from the local governments listed above them in the tables.

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 2000 we are almost twice the size of Charlotte, a difference of some 3,375. 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 2000, it is over 4 times as large. Charlotte trails both its neighboring communities to the north, but with its 2000 population of 3,569 it ranks 40th 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 2000 population makes it the 18th largest place in the state, just behind Barre City (17th largest at 7,602) and ahead of 19th ranked Winooski (6,561). To complete our consideration of absolute population, consider 2000 rankings for the other places within Vermont: Burlington, at almost 40,000 the largest place in the state and twice as large as its nearest competitor (Essex Town, which includes the village at over 18,000), Colchester in 3rd place, Montpelier in 13th and Williston, tied with St. Albans City at 7,650 residents, ranked 14th.

Population

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

Geographic Division	Absolute Population Change					Total Population	
	1950-60	1960-70	1970-80	1980-90	1990-2000	1950	2000
Charlotte	56	531	759	587	421	1,215	3,569
Shelburne	440	1,923	1,272	871	1,073	1,365	6,944
South Burlington	3,624	3,129	647	2,130	2,070	3,279	14,879
Colchester	821	4058	3853	2102	2255	3,897	16,986
Williston	302	1703	656	1044	2763	1,182	7,650
Burlington City	2376	3102	-921	1415	697	33,155	39,824
Montpelier	183	-173	-368	6	-212	8,599	8,035
Chittenden County	11,855	24,706	16,403	16,227	14,810	62,570	146,571
Vermont State	12,143	54,850	66,725	51,302	46,069	377,747	608,827

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
Charlotte	5%	42%	42%	23%	13%
Shelburne	32%	108%	34%	17%	18%
South Burlington	111%	45%	6%	20%	16%
Colchester	21%	86%	44%	17%	15%
Williston	26%	115%	21%	27%	57%
Burlington City	7%	9%	-2%	4%	2%
Montpelier	2%	-2%	-4%	0%	-3%
Chittenden County	3%	14%	15%	14%	11%
Vermont	3%	14%	15%	10%	8%

Source: US Census of Population and Housing, 1950-2000.

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

In the data presented here, 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.

In this analysis, an indirect, but time honored, technique for estimating migration in our town has been used. We simply take the total annual births and deaths in Shelburne from 1990 to 2000, add them together and

Population

subtract them from the absolute number of new residents from 1990 to 2000 as ascertained by data collected from the recent Census. The result is an estimate of migration in town. Table 4 shows the absolute numbers reflecting population change in our community, contrasted with those for Chittenden County and the state. It can be seen from Table 4 that Shelburne's absolute population increase from 1990 to 2000 was 1,073 residents.

**Table 4. Absolute Population Change.
Shelburne, Chittenden County and Vermont,
1950 to 2000.**

Geographic Division	<i>Absolute Population Change</i>				
	1950-60	1960-70	1970-80	1980-90	1990-2000
Shelburne	440	1,923	1,272	871	1,073
Chittenden County	11,855	24,706	16,403	16,227	14,810
Vermont State	12,143	54,850	66,725	51,302	46,069

Source: 2000 US Census of Population and Housing and Vermont Department of Health

Table 5 depicts "natural increase" (births minus death, cumulated from annual totals reported through the town clerk to the Health Department) in Shelburne as 314 persons for 1990 to 2000. By subtracting the 314 "natural increase" from the 1,073 absolute population change for the decade, we obtain the figure 759, an estimate of the in-migration. The conclusion to be gleaned from Table 5 is 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, or in the 1970s, when natural increase was just 21.2 percent. Clearly there are some wide swings in these sources of population change.

**Table 5. Components of Population Change:
Absolute Natural Increase and Migration.
Shelburne, Chittenden County and Vermont 1950 to 2000.**

Geographic Division	<i>Natural Increase</i>					<i>Assumed Net Migration</i>				
	1950-60	1960-70	1970-80	1980-90	1990-2000	1950-60	1960-70	1970-80	1980-90	1990-2000
Shelburne	333	375	270	473	314	107	1,548	1002	398	759
Chittenden County	13,609	12,708	8,967	10,934	9,818	-1,754	11,998	7,436	5,293	4,992
Vermont	50,014	38,953	28,869	34,791	23,069	-37,871	15,897	37,856	16,511	23,000

Source: 2000 US Census of Population and Housing and Vermont Department of Health

Great vacillation occurs in the ratio of natural increase to increase due to migration over recent decades. As Table 6 shows, Shelburne's rates appear to make sense when compared to those for the county and state. However, these data for our town greatly exaggerate the impact of growth making it clear that we were among the early communities to experience the post WW-II growth; we lead both the state, and to a lesser degree, the county. This is most clearly shown in the 1950s where the state and county are still both experiencing out migration while Shelburne, apparently some 10 to 15 years ahead on the growth parade differs dramatically from the state. The inference is that, in recent decades, Shelburne experiences growth which in some decades is characterized by greater natural increase and others by greater in-migration. The swing is 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 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.

Population

**Table 6. Natural Increase as a Percent of Absolute Population Change.
Shelburne, Chittenden County and Vermont 1950 to 2000.**

Geographic Division	<i>Natural Increase as Percent of Absolute Population Change</i>				
	1950-60	1960-70	1970-80	1980-90	1990-2000
Shelburne	75.7%	19.5%	21.2%	54.3%	29.3%
Chittenden County	114.8	51.4	54.7	67.4	66.3
Vermont State	411.1	71.8	43.3	67.8	50.1

Source: 2000 US Census of Population and Housing and Vermont Department of Health

D. Age Composition

Shelburne's elder population has grown significantly, while the number of children under five and persons in their 20s and 30s is declining. 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 1990 to the one of 2000, it can be noted that the pyramid has maintained a similar type structure. However, some key differences to point out include the decline in the young adult population, the increase in the under-20 population, and the increase in the 70+ population. 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 2000 pyramid is centered on the 45-49 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 comparable in shape to the Chittenden and Vermont pyramid populations. The Vermont pyramids are 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 2000, this "baby boom belt" has moved up on the pyramids and the 35-39, 40-44, and 45-49 age groups have all increased. There seems to be evidence that Shelburne has an overall older population than Chittenden County and Vermont as a whole. However, the relative size of the Town's youth population is similar to that of the state as a whole.

Population Pyramids

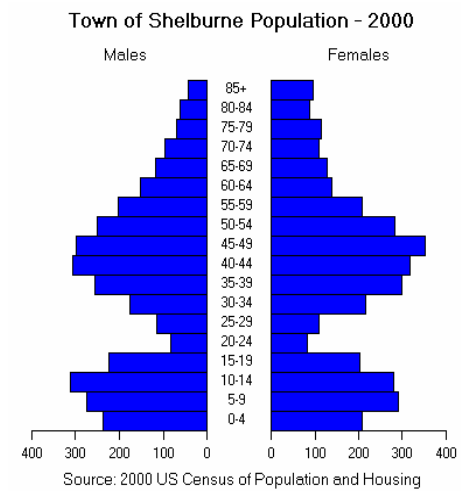
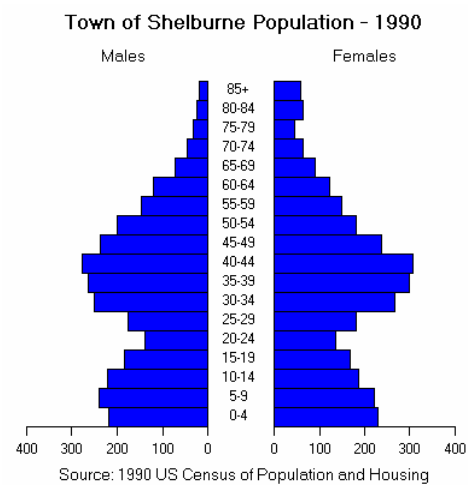
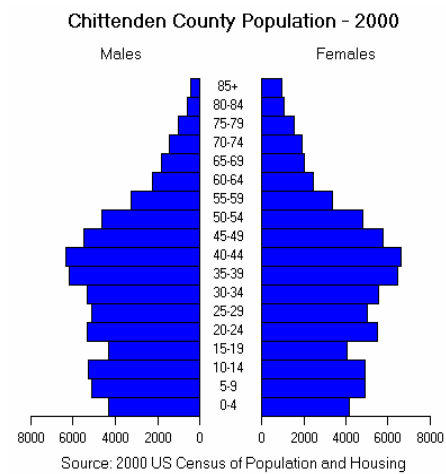
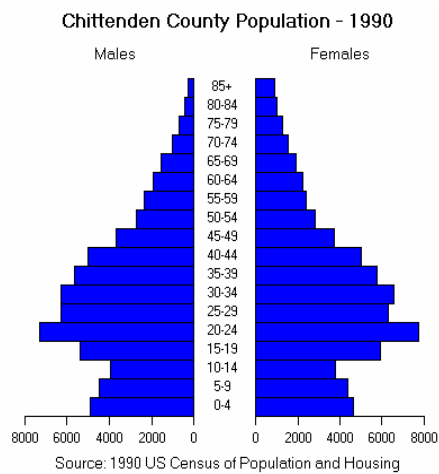
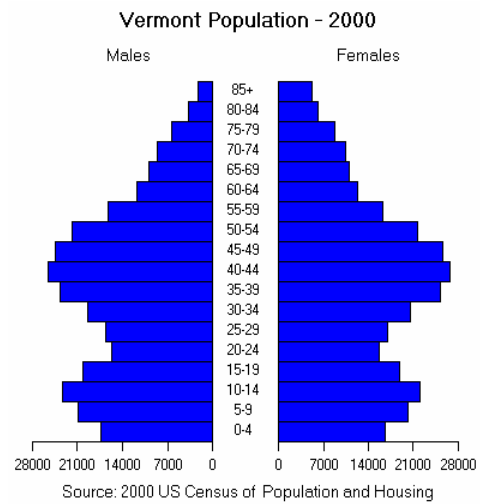
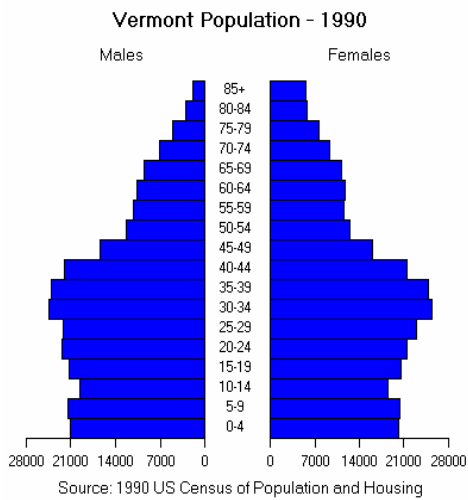


Figure 2. State, County, Town Population Structure, 1990 and 2000

Source: US Census

Population

E. Population Estimates and Projections

Over the past half century Shelburne's population has grown dramatically from 1,365 persons in 1950 to 6,944 persons in 2000. On average, the Town has added just over 110 new residents per year. The growth rate was highest in the sixties and lowest in the fifties, and has held relatively stable at 107 persons per year from 1970 to 2000.

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. Besides being consistent with past trends, this projection falls between the forecasts prepared for Vermont by Massachusetts Institute for Social and Economic Research (MISER), a similar forecast by William J. Smith, and a Shelburne Planning Office forecast based on work by Economic and Policy Resources (EPR) completed for the Chittenden County Metropolitan Planning Organization. See Table 7.

Table 7. Selected Population Projections, 2000-2020

	(Census)					Average Annual Change
	2000	2005	2010	2015	2020	
CCMPO-EPR*	6944	7665	8325	8985	9645	135
MISER-William J. Smith	6944	7215	7324	7374	7492	27
Historic Rate**	6944	7502	8060	8618	9176	112

* household-based; assumes 2.5 persons per household

** based on population change 1950-2000; average of 111.6 persons per year

Sources: William J. Smith, "Enrollment Projections-CSSU Schools", November 28, 2004;
"Economic and Demographic Forecast: Demographic Forecast Update for Chittenden County
2000 to 2035", Economic and Policy Resources, June 2001; US Census Bureau

F Implications:

After 150 years of hovering around 1,000 residents, the past half century has witnessed dramatic population growth in Shelburne. Shelburne's recent growth rate has exceeded both the rate of growth for Chittenden County and the State of Vermont. Shelburne's year 2005 population of 6,995 is an all time high. Assuming the archeological evidence showing limited pre-colonial settlement is accurate, understanding the impact of so many people in one place has no precedent here.

Shelburne has developed a considerable population base without the accompanying urbanization, e.g. high rises, factories, traffic. Will the Town continue to develop an economic base without urbanization?

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, or in the 1970s, when natural increase was just 21.2 percent.

The inference is that, in recent decades, Shelburne experiences growth which in some decades is characterized by greater natural increase and others by greater in-migration. The swing is 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 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. 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 1,123 individuals between 1990 and 2000. The Town saw a corresponding increase in its housing stock during that decade of 391 housing units. The level of housing growth for the period 1990 to 2000 is depicted in Table 8 below.

Table 8. Housing Growth: Town of Shelburne and Chittenden County, 1990 – 2000

Place	1990			2000			Percent Change
	Persons	Housing Units	Persons/ Unit	Persons	Housing Units	Persons/ Unit	
Shelburne	5,871	2,350	2.50	6,944	2,741	2.53	16.6%
Chittenden County	131,761	52,095	2.53	146,571	58,864	2.49	13.0%

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

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.

Shelburne's vacancy rate is considered to be very low. Of the 2,741 housing units in Shelburne in 2000, only about 1 percent (excluding seasonal dwellings) were vacant in 2000. This is consistent with Chittenden County's vacancy percentage but is only about one-half that of the State's 1.9 percent vacancy rate. 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

Housing

official standard and economists do not agree 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 exceeds the 391 added between 1990 and 2000. The significant decrease in the number of new housing units constructed in the 1990s would seem not to be attributable to a lack of demand. Rather, it seems rooted to the fact that the Town's sewer service capacity was at maximum for most of the decade.

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).

B. TRENDS AND ISSUES

1. Growth

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 Wake Robin (35 units).

Under 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 by the Planning Commission, these developments will be constructed over a period of at least six years. As shown in Table 9 below, already-approved residential growth in the Town can be expected to average in excess of 36 units per year.

It should be 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 and zoning regulations in effect, are less susceptible 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 will not render that portion of Shelburne outside the Sewer Service Area susceptible to denser residential development than that which was possible under the prior Environmental Protection Rules. The Town's Selectboard has opted to make the technical standards of the new Regulations applicable in Shelburne.

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

Project	<i>Number of Units in Project</i>			<i>Estimated year of Construction</i>					
	Total units	Single family	Multi family	2006	2007	2008	2009	2010	2011
Boulder hill	37	37	0	5	0				
Rice Woods [^]	62	26	36		7	15	15	15	10
Forest Park/River Crest Estates	68	27	41		7	17	17	17	10
Bays End Subdivision	5	5	0	1	2	2			
Wake Robin Cottages	35				35				
Sinha	2	2			2				
Catamount / Shelburne Inn	9		9						
Hyde	2	2		2					
Anderson	2	2		1	1				
Shelburne Point	6	6			2	2	2		
WAG	6	6			3	3			
Yearly Total				9	59	39	34	32	20
6 Year Total	193								
6 Year Average	32.16								

Source: Shelburne Planning Office

As mentioned above, Shelburne’s housing stock grew by 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.

2. Affordability

The cost of housing in Shelburne is high relative to other communities in the region. The median price of a home on less than six acres in Shelburne in 2002 was \$209,000 while the average home price that same year was \$236,712. In Chittenden County, the comparable figures were \$169,900 and \$190,749, while, for the State as a whole, they were \$130,000 and \$150,295.³ In addition, Shelburne's monthly rental housing cost is the highest in Vermont with a median gross rent figure in 2000 for all units of \$1,077, compared with \$662 for Chittenden County and \$553 for the State.⁴

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, November 2003

Housing

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. Lake Champlain Housing Authority's 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) and which are located on Addie Lane. BCLT hopes to manage another 14 units of affordable housing currently being constructed on Harbor Road. 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 O'Brien subdivision.

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.”

In a memorandum dated August 20, 2003, 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:

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 is 10,000 units. Applying allocation factors developed by the Task Force, the Chittenden County Regional Planning Commission (CCRPC) has recommended that the total housing need goal for the Town of Shelburne over that period be 531 units. This number includes a total of 53 units of Moderate Income housing as well as 53 units of Affordable Housing.

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 an increase in the number of units of "housing for the elderly" (defined as housing for persons 60 years of age and older by the Town's Zoning Regulations). An eight- unit senior housing

neighborhood has been developed on Shelburne Road. As noted above, some 47 assisted care units have been added at the Shelburne Bay Senior Housing facility, while the addition of 37 independent living units (cottages) and 18 assisted living units (i.e., health care beds) at Wake Robin has been approved by the Planning Commission.

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.

Many 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. Following 160 years (1790-1950) of a relatively stable population of approximately 1,000 persons, Shelburne has experienced substantial 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 several questions presented in the Survey. With respect to rate of growth and, as mentioned above, a majority of respondents (52 percent) were of the view that the town's residential growth in the 1990's (391 houses) was too fast. This is of particular interest in light of that decade's much slower growth rate than that of the 1980's (631 houses) when the town, like now, had sewer capacity available.

A substantial majority of respondents to the 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 their numbers are diminishing. Today, a few agricultural enterprises remain in the Town, historical 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 2002, some 3,191 jobs were provided by “covered” employers in Shelburne (those required to enroll in unemployment insurance programs). This compares with 94,084 covered positions 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. As shown in Table 10 below, growth in employment in Shelburne has lagged behind growth in the County as a whole. Locally, employment levels rose nine percent between 1995 and 2002, while regionally employment levels rose 14 percent. Shelburne’s relative decline is largely attributable to job losses in the manufacturing and publishing sectors. These losses were offset by significant gains in the retail sector and in the Trade/Transportation/Utilities sector.

Recent job growth appears to be as the result of larger payrolls as opposed to the creation of large numbers of new enterprises. As shown in Table 11, the number of employers in both the Town and the Region was essentially unchanged between 1997 and 2002, although the Town did enjoy relatively healthy growth in the number of employers in the five years prior.

Table 10. Change in Covered Employment, Shelburne and Chittenden County

Sector	1995	2002	Change
Shelburne			
Manufacturing	526	277	-47%
Trade Trans Utils	628	835	33%
Retail	501	755	51%
Publishing	69	40	-42%
Financial	42	50	19%
Finance and insurance	29	33	14%
Leisure/hospitality	627	670	7%
Other	502	531	6%
Total	2924	3191	9%
County			
Manufacturing	13985	14658	5%
Trade Trans Utils	16331	18559	14%
Retail	10603	12673	20%
Publishing	673	731	9%
Financial	4643	4887	5%
Finance and insurance	3466	3748	8%
Leisure/hospitality	7885	8551	8%
Other	25031	30277	21%
Total	82,617	94,084	14%

Source: Vermont DET

Table 11. Change in Total Employers, Shelburne and County

	1992	1997	1992 to 1997 annual change	2002	1997 to 2002 annual change
Shelburne	269	314	3.3%	313	-0.1%
County	5040	5459	1.7%	5581	0.4%

Source: Vermont Dept Employment and Training

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, Shelburne Farms, and the Morgan Horse Museum. 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.

C. INCOME, WAGES, AND UNEMPLOYMENT

Based on Vermont Tax Department records for 2001, 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 \$84,000, which is twice as high as the average for the state of Vermont.

Table 12. Change in Adjusted Gross Income (AGI) per return, Shelburne and State of Vermont

	1996	2001	Annual change
Shelburne	\$ 69,244	\$ 84,084	4.3%
Vermont	\$ 34,878	\$41,891	4.0%
Shelburne as percent of State	199%	201%	

Source: Data Analysis by Shelburne Planning Office

Table 12 also reveals that incomes in Shelburne have risen marginally faster than incomes in the state as a whole. The distribution among income groups is quite even for the state as a whole, but it is skewed toward the higher end in Chittenden County, Vermont’s most prosperous region. Shelburne’s concentration at the high end exceeds even that of the county. The income data portrays a very enviable situation. However, it is important to recognize that 40 percent of the Town's households reported an adjusted gross income of less than \$30,000 (including zero or negative income) in 2001. Indeed, 30 percent of the returns filed were from taxpayers with adjusted gross income of less than \$20,000 per year.

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).

Economy

Table 13. Labor Force, Unemployment Rate, Income, and Wage Comparison

	Shelburne	Chittenden County	Vermont
Labor force, 2002	4,390	94,050	348,700
... employed	4,320	91,350	335,600
... unemployed	70	2,700	13,100
... unemployment rate	1.70%	2.90%	3.70%
Per capita income of Shelburne residents	\$37,210	\$23,501	\$20,625
Annual average wage paid by local employers, 2002	\$27,323	\$36,342	\$31,010

Sources: US Census; Vermont Department of Employment and Training

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.

Shelburne faces the risk of losing more employment opportunities due to the rising price of housing. Land in Shelburne is now most often being sought after for housing purposes, which conflicts with businesses that wish to expand. This could have the effect of driving employers away from the Town.

According to data for 2001 from the Vermont Tax Department, Adjusted Gross Income (AGI) levels in Shelburne are among the highest in the state of Vermont (the townwide AGI divided by total number of returns exceeded \$84,000 that year). Income levels vary considerably, however. In 2001 some 40 percent of the Town's household's reported having an income of less than \$30,000 while 30 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 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 town highway network. Totalling 54 miles, this network of public roads consists of 48 miles of paved roads and 6 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.

Transportation

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 6.5 miles of state highway, although no Class I highways (which are town highways which form the extension of a state highway route and carry a state highway route number). Most Shelburne 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 24.2 miles of Class III road. The remaining 0.1 mile of town highways is classified as Class IV roads.

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 2003-4 would constitute approximately 18 percent of the budgeted Town highway expenditures for that year.

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 2002 ranged from 11,700 vehicles per day at the Shelburne/ Charlotte town line to 18,400 vehicles per day near Webster Road to 22,700 vehicles per day near the South Burlington/Shelburne Town line. 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 2001 Sufficiency Rating Report, the section of Route 7 within and south of Shelburne village was rated Poor. Meanwhile the section north of the Village is on the boundary between poor and fair (60 points).

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.

Over the past two decades years, Route 7 has experienced a slow and nearly steady growth in traffic. See Figure 3. According to the Survey, Shelburne residents have 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 traffic problems and allowing for alternative forms of transportation with the provision of sidewalks and bike lanes. Now nearly complete, this project will no doubt improve traffic flow for this section of highway—at least for a period of years. The project will also have a significant impact on the appearance and character of the highway corridor. However, according to at least one analysis by the CCMPO, these changes will also induce additional traffic and use of the highway. If the amount of induced traffic is high, this could have significant implications for quality of life in Shelburne village.

Although there have been studies in the past of potential bypass locations, it is unlikely that this alternative will be feasible. As traffic increases, particularly truck traffic, it will be important to the long term viability of the Village to implement changes which either reduce traffic or mitigate its impacts.

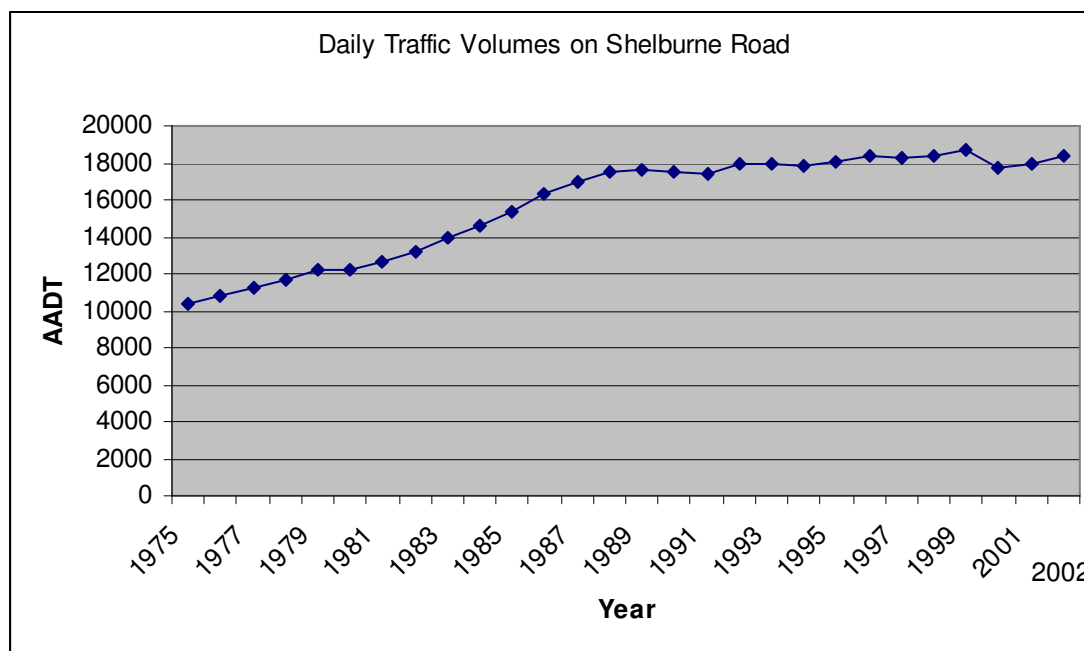


Figure 3. Route 7 Traffic Volumes in Shelburne Village

(Station D243, located 800 feet north of Shelburne Road-Harbor Road intersection)

Source: Vermont Agency of Transportation via CCMPO

b. Route 116

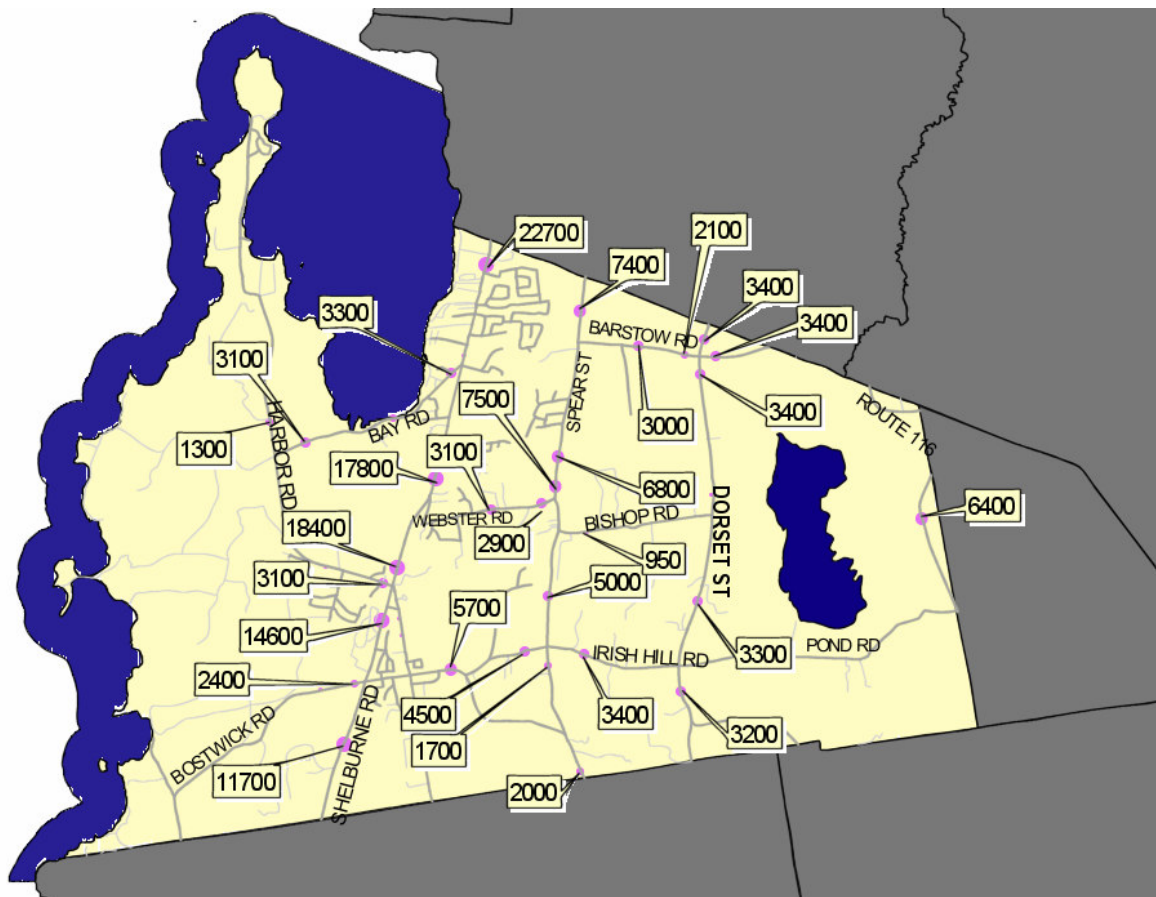
Route 116 is a secondary north-south state route of which 1.2 miles are located in Shelburne. In 2002, the Shelburne segment of Route 116 carried 6400 vehicles per day. At 24 feet wide, with two foot shoulders, the section of Route 116 within Shelburne barely qualifies for a sufficiency rating of Fair, according to the 2001 Sufficiency Rating Report. A larger section of Route 116 from Hinesburg to St. George has been road designated as a priority project by the draft CCMPO Metropolitan Transportation Plan.

Transportation

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, traffic volumes on local roads range from a handful of vehicles per day to 3400 daily on Dorset Street and Cheesefactory Road, at least 4500 on Irish Hill Road, and up to 7500 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.



Map 20. Daily Traffic Volumes at Selected Locations in Shelburne,
Reflecting most recent data collected 2001-2004

Source: Chittenden County MPO

d. 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 36 percent over ten years. The largest increases in volume took place along US Route 7 in Shelburne village and south of the village, as well as along Spear Street between Webster Road and Irish Hill Road. East-west traffic levels also appear to be rising significantly, as a 44 percent increase was observed on Harbor Road, while a 36 percent increase was observed on Irish Hill Road, and a 38 percent increase was observed on Pond Road.

e. 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.

f. 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 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. These results are summarized in the Table 14 below.

US 7/Harbor Road/Falls Road

According to analyses prepared as part of the Bullrock-Town of Shelburne development application, in 2004 the US 7/Harbor Road/Falls Road intersection was anticipated to function at level of service C in 2004. In 2009, the intersection is anticipated to function at level of service C with or without the project, except that with the project level of service would fall to D in the PM peak. See Table 14 below.

It should be noted that the levels of service calculated for the Harbor Road intersection were obtained by optimizing existing signal timings for future traffic volumes "as opposed to maintaining the existing signal timings which the Harbor Road Study found produced considerably higher delays and lower levels of service." Thus, the results hinge on a significant investment being made to improve traffic operations.

Optimizing the signal timings generally involves adjusting the green times and/or the cycle length. This is very easily done with the programmable controller that exists at this intersection, and requires no new

Transportation

hardware or signal modifications. As a rule of thumb, general maintenance of traffic signals typically includes adjusting their timings every 3-5 years to accommodate changes in traffic volumes and patterns.

The applicant's traffic consultant recommended that adequate pedestrian facilities be incorporated into this Project in order to improve future traffic safety conditions. The facilities that we recommend include a pedestrian crossing of Harbor Road just west of Blodgett Road, the installation of edge lines and bulb-outs on Harbor Road in order to provide traffic calming, and providing pedestrian pathways internal to the Project, particularly along Blodgett Road.

The applicant's traffic consultant also indicated that consideration should also be given to installing bulb-outs to narrow the roadway to 26' wide at this crosswalk. Those bulb-outs would provide a traffic calming benefit and enhance the safety of the new crosswalk.

Irish Hill Road

According to analyses prepared as part of the Forest Park Realty/O'Brien Brothers application, in 2002 the Irish Hill Road and Spear Street intersection functioned at level of service (LOS) C. With the project and the traffic anticipated from development on other land owned by the applicant south of Irish Hill Road the level of service is anticipated to range from C-D. On individual approaches to the intersection, LOS is anticipated to drop as low as LOS E (on the Spear Street northbound approach) with both projects constructed.

Similarly, the Irish Hill Road and Thompson Road intersection was estimated to function at level of service (LOS) B overall in 2002. In 2007, conditions would decline slightly to LOS C overall with the project and the traffic anticipated from development on other land owned by the applicant south of Irish Hill Road. In addressing what type of traffic-related improvements might be needed due to the proposed project, the applicant's traffic consultant testified that the warrants for installation of exclusive turn lanes (which would be used by vehicles turning from Irish Hill Road to Thompson Road) are not satisfied at the 35 mph speed limit. Nevertheless, as part of project review the applicant proposed to enhance traffic operations at the Irish Hill-Thompson Road intersection by reconfiguring the intersection. Proposed changes include realignment of the Thompson Road approach so that it is perpendicular to Irish Hill Road, as well as an increase in the size of the turning radius (for vehicles turning right from Irish Hill Road to Thompson Road). Plans also include installation of new signs.

Webster Road

As part of the Sterling Construction/Boulder Hill application, the functioning of the Webster Road and Spear Street intersection was examined. Both two-way and all-way stop capacity analyses were conducted. The PM peak Levels of Service in 2005 on the eastbound Webster Road approach were Level of Service D with or without the project. In 2010 this Level of Service changed to E. The PM peak Levels of Service on southbound Spear Street were E for 2005 with or without the project, and F in 2010. The northbound remained at Level of Service A throughout. The traffic engineer concluded that the project would not change the Level of Service experienced by motorists at this intersection through 2010.

Table 14. Level of Service at Selected Locations, Town of Shelburne

US 7/Harbor Rd./Falls Rd.
Level of Service and Overall Average Delay (sec/veh)

Year	AM Peak		Mid-Aft. Peak		PM Peak	
	No-Build	Build	No-Build	Build	No-Build	Build
2004	C (30)	C (32)	C (25)	C (26)	C (30)	C (33)
2009	C (32)	C (35)	C (26)	C (28)	C (33)	D (36)

Irish Hill Rd./ Spear St.
Level of Service and Overall Average Delay (sec/veh)

Year	PM Peak	
	No-Build	Build
2002	C (13.8)	-----
2007	C (21.3)	D (25.4) north and south projects C (23.1) north project only

Irish Hill Rd. / Thompson Rd.
Level of Service and Overall Average Delay (sec/veh)

Year	PM Peak	
	No-Build	Build
2002	B (12.8)	-----
2007	B (14.3)	C (17.0) north and south projects C (15.3) north project only

Webster Rd./ Spear St.
Level of Service

Year	PM Peak	
	No-Build	Build
2005	E	E
2010	F	F

SOURCE: Data compiled from traffic studies by Shelburne Planning Office

Transportation

The traffic study noted that the accident history on Webster Road indicates no major problems with traffic safety and that the Shelburne Police Department has no major concerns regarding accidents on this road. According to the study, the turning movements for the project access intersection do not meet the warrants for exclusive left or right-turn lanes onto Webster Road. The sight distances to the east and west at this intersection exceed the recommended sight distance of 385' for the posted speed limit of 35 mph. The sight distances are also adequate for up to 20 mph over the speed limit in the westbound direction and over 6 mph in the eastbound direction.

g. Driving Patterns

As depicted in Table 15 below, 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.

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 Decision Support System (DSS) analysis for Shelburne, the amount of driving for all trip purposes, including work trips as well as trips for shopping, school, and recreation, averages nearly 25 miles per person per day for one-way trips beginning or ending at home and another 10.3 miles per person per day for trips not beginning or ending at home. Also according to the DSS, the number of daily vehicle trips averages more than 3 one-way trips per person. Of these, two are home-based (i.e., begin or end at home), while the third is not home based.

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

h. 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,

Transportation

- * 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 have been incorporated into the design of the Shelburne Road reconstruction project. However, access management principles may be 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.

i 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 14 daily trips on weekdays and four daily trips 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.

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. 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).

Shared parking is a concept with applicability all over the Town of Shelburne. 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.

Transportation

Improvements associated with the Shelburne Train station have created a de facto, although lightly used, commuter parking lot with some 50 spaces. The Chittenden County MPO recently completed a Park and Ride Facility Prioritization report that recommends commuter use of the Railroad station be monitored. The report also recommends that locations in the northern part of Shelburne be analyzed as part of an effort to locate a new commuter lot near the US 7/I-189 intersection.

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 line has been limited in the last decade.

As noted in the CCMPO draft regional transportation 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 currently no formal plan for resuming this service.

As noted in the CCMPO draft regional transportation plan, the State of Vermont is also pursuing project known as the “Albany-Bennington-Rutland-Burlington,” or “ABRB” passenger rail project. No timetable for implementing Amtrak service to Burlington, however, has been set. The ABRB project would need to be coordinated with plans to develop a “rail-with-trail” project for the Vermont Railway corridor from Charlotte to Burlington.

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.

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. The Town commenced sidewalk improvements subject to the grant in 2001/2002. According to local officials, the work called for in the report has been completed.

More recently, sidewalks have been constructed at Boulder Hill and Ockert Lane in connection with the residential development of those areas. And, 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. From Webster Road to the south side of the LaPlatte River bridge there will be widened shoulders and a sidewalk on the east side of the highway. In the Spring of 2007, construction of a sidewalk from the LaPlatte River Bridge to the intersection of Falls Road and Shelburne Road is expected.

Despite the recent surge in the construction of sidewalks in the Town, however, the system of sidewalks and crosswalks has several noticeable gaps. As a follow up to the Walkable Communities workshop sponsored by the Chittenden County Metropolitan Planning Organization, the BPPC has 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 BPPC, as part of its work, has also identified path and bikeway priorities. See Table 16 and the Priority Sidewalks and Crosswalks Map and the Priority Paths, Trails, and Lanes Map (Map 23).

Transportation

Table 16. Sidewalk, Crosswalk, Path, and On-Road Bicycle Facility Priorities in Shelburne

Category	Priority
SIDEWALKS	
	Top Priority:
	1. Sidewalk on East side of Rt. 7 north of Harbor Rd. to LaPlatte River Bridge
	2. Sidewalk on Church Street
	3. Sidewalk on North side of Harbor Rd. from Rt. 7 to Turtle Lane
	4. Sidewalk repair on South side of Harbor Rd.
	5. Sidewalk on Mt. Philo Rd. from Falls Rd. to Wild Ginger Ln. to connect those neighborhoods into the village.
	High Priority:
	6. Sidewalk on West side of Falls Rd. from Gallery-On-the-Green to Church St.
	7. Upgrade sidewalk (include curbs) on East side of Falls Rd. to separate from vehicular traffic and parking on sidewalk.
	8. Sidewalk on West side of Rt. 7 from Church Street to Bostwick Rd.
CROSSWALKS	
	Top Priority:
	1. Harbor Rd. and Rt. 7 (4 crosswalks needed)
	2. Church St. and Rt. 7 (2 crosswalks needed)
	3. School St. and Harbor Rd. (1 crosswalk needed)
	4. Church St. & Falls Rd. (2 crosswalks needed)
	High Priority:
	5. Across Rt. 7 at North side of Bostwick/Marsett Rds. Intersection
	6. Across Bay Rd at northern terminus of Ti-Haul path
	7. Marsett/Falls Rd. & Mt. Philo Rd. (2 crosswalks needed)
	8. Bacon Drive and Falls Rd. (1 crosswalk needed)
MULTI-USE PATHS	
	Top Priority:
	1. Longmeadow-Webster Rd. Path
	2. Path on Harbor Rd. from School Street to Ti-Haul path.
	3. Village to Beach
	High Priority:
	4. Harbor Rd. from Bay Rd. to northern terminus of Harbor Road
	5. Bay Rd. from Harbor Rd. to Shelburne Bay Park
ON-ROAD BICYCLE FACILITIES	
	Top Priority:
	1. US 7 from Laplatte River bridge to Shelburne/Charlotte municipal boundary
	2. Marsett/Falls/Irish Hill Rd. from US 7 to Dorset Street
	3. Spear St. from Irish Hill Rd. to Shelburne/South Burlington municipal boundary
	4. Bay Rd. from Rt. 7 to Shelburne Bay Park
	5. Webster Road Bicycle Lanes
	High Priority:
	6. Dorset St. from Irish Hill/Pond Rd. to Shelburne/South Burlington municipal boundary
	7. Shelburne-Hinesburg Rd. from Dorset St. to Shelburne/Hinesburg municipal boundary
	8. Barstow Road from Dorset St. To Spear St.

SOURCE: Shelburne Bike and Pedestrian Paths Committee, June 2006

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 are unsafe for pedestrian or cyclist traffic due to the lack of adequate shoulders and designated lanes for bikers and pedestrians. An exception to this is a 1.5 mile section of Spear Street which has an at-grade designated “bikelane.” Route 7 currently has neither sidewalks nor bikepaths, although the planned reconstruction of Route 7 will help to remedy this situation by adding bike lanes and sidewalks on both sides of the road. From Webster Road to the south side of the LaPlatte River bridge there will be widened shoulders and a sidewalk on the east side.

Other than lightly traveled roads that are suitable for use by cyclists, the Town currently lacks significant mileage of 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. The Alternative Transportation Master Plan being developed by the NPC recommends that, in the future, on-road facilities be developed in several

Transportation

locations. These locations include Spear Street, Dorset Street, Irish Hill Road, Bostwick Road, Bay Road, and Harbor Road.

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. The Alternative Transportation Master Plan contains no specific recommendations for recreation trails. However, the development of such trails is supported 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* should be observed in the course of planning and designing transportation facilities in Shelburne.

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 invariably 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.

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 serves over 500 children in the soccer program, approximately 150 in youth basketball, approximately 250 in baseball (in conjunction with Shelburne Little league), 80-100 in dog obedience, and more than 120 in after-school skiing. Another 400-plus people are served by the department's summer concerts. 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 soccer program administered by the Shelburne Soccer Club, sailing (Shelburne Yacht Club), arts and crafts (Shelburne Craft School), museums (Shelburne Farms and Shelburne Museum), and other events (Shelburne Athletic Club).

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, horseback riding, 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 has created and is now updating a Town-wide Alternative Transportation Plan (ATP). This Plan 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 ATP also recognizes the need to create links to adjoining towns.

e. Existing Needs.

Although Shelburne boasts many recreation opportunities, a number of 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) many of the identified recreation deficiencies relate to the Shelburne Town Beach. According to the Town Recreation Committee, the sea wall that currently is in place is slowly moving and leaning due to erosion, while the the playground 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 is currently in decent condition. However, 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.

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. Volume I 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 free of charge. Even temporary residents (staying less than six months) or tourists may borrow paperback books from the library or exchange books and puzzles from the "Visitors' Bookshelves."

b. Hours of Operation, Circulation, and Staffing.

The Pierson Library is currently open thirty-seven hours per week, including Saturdays and two weekday evenings. As of July 1, 2004 the weekly hours increased to forty-five. There are 2,500 registered patrons with current cards. Circulation for the fiscal year of 2002-2003 was 44,203 items. Staff includes one full-time library director, four part-time assistants, and four part-time staff provide other support. When the weekly hours increase one of the part-time staff will become full-time. There

Community Facilities, Utilities, and Services

are twenty-two 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 26,787 items, including books, videos, large print books and audio recordings of books and music. The library holds 114 periodical titles, as well as puzzle and game exchanges. Five computers are available to the public for word processing, Internet access and access to four online databases. Three of the online databases are available to library users from their homes. These computers also access the library's automated catalog, along with another three computers which are used only as Online Public Access Catalogues (OPACs). 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, and educational programs and occur on an average of two per month. There is an average attendance of twenty-three people attending adult programs and sixty-five attending youth programs. Eight local daycares are visited by the youth services assistant on a three week rotation. 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 expected that this space will serve for at least ten years. When needed there are plans for an expansion onto the northwest lawn.

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 Police Department has a current police staff of 11 full time officers, including the police chief, sergeant, corporals, and patrol officers. The department also employs eleven part-time officers, an administrative assistant, six full-time dispatchers and seven part-time dispatchers. The communications center of the Police Department provides dispatching services to the police and other Shelburne emergency services, including rescue and fire services, as well as to emergency services in a number of nearby communities.

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 17 below. Statistics included in this Table are drawn from the Vermont Crime Report, which assigns crimes to two main categories. So-called "Part I" crimes include violent offenses such as criminal homicide, forcible rape, robbery, aggravated assault, burglary, larceny-theft, motor vehicle theft, and arson. So-called "Part II" 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.

The number of Part I crimes reported in Shelburne has remained relatively steady in recent years, ranging from 11.7 crimes per thousand in 1999 to 16.1 crimes per thousand in 1997. However, the number of Part II crimes has grown significantly, more than doubling from 23.4 crimes per thousand in 1997 to 49.1 per thousand in 2002. Nevertheless, local crime rates remain well below county wide levels of 40.3 Part I crimes per thousand and 80.7 Part II crimes per thousand.

It should be noted that the definitions for Part I and Part II 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.

Community Facilities, Utilities, and Services

Table 17. Part I and Part II Crime Statistic, Town of Shelburne

	1997	1998	1999	2000	2001	2002	2003
PART I CRIME							
Homicide	0	0	0	0	0	0	0
Rape	0	0	1	2	1	0	0
Robbery	0	0	0	2	1	0	0
Aggravated Assault	2	1	0	3	3	2	3
Burglary	27	30	29	15	24	22	37
Larceny	76	68	49	86	56	68	96
Auto Theft	3	1	2	3	2	8	6
Arson	0	0	0	0	1	2	0
totals	108	100	81	111	88	102	142
PART II CRIME							
Forgery	0	0	0	1	2	3	2
Fraud	13	2	4	60	44	61	59
Embezzlement	1	0	0	0	1	1	1
Stolen Property	6	0	0	3	7	3	8
Vandalism	23	22	15	77	59	50	28
Sex Offense	4	0	2	3	5	15	11
Drugs	7	4	9	18	13	12	20
Family/Child	7	6	6	33	28	42	49
Liquor Violations	11	32	20	20	17	23	7
Disorderly Conduct	29	8	21	41	13	22	20
Simple Assault	14	5	3	17	16	15	16
Weapons	0	0	1	0	2	0	2
Prostitution	0	0	0	0	0	0	
Gambling	0	0	0	1	0	0	
Vagrancy	0	0	0	0	1	1	1
DUI	16	25	61	69	46	44	63
Other	26	14	26	71	50	55	82
Total	157	118	168	414	304	347	369
PART I CRIME RATE	16.07	14.77	11.72	15.96	12.65	14.67	19.67
PART II CRIME RATE	23.36	17.43	24.31	59.54	43.70	49.91	52.22
COUNTY							
PART I CRIME RATE		46.12	41.52	46.04	38.85	40.29	
PART II CRIME RATE		105.27	99.14	103.58	98.81	80.68	

SOURCE: Vermont Crime Report Web Site

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.

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 over 30 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).

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 18.

Table 18. 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 Pumper	1500 gpm	1000 gals	Excellent
1995	E-One/International	Tanker	500 gpm	1800 gals	Excellent
1991	E-One	Pumper	1250 gpm	750 gals	Fair
1991	E-One/International	Heavy Rescue	N/A	N/A	Good

Source: Shelburne Fire Department

Community Facilities, Utilities, and Services

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 and encourage fire safety practices.

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 just over 200 per year. The current level of demand is significantly higher than the level experienced in 1992, but somewhat lower than levels in 1999, when the Department responded to 252 calls. As noted in Table 19, 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, 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.

Table 19 **Fire Department Activity, Town of Shelburne**

	1999	2000	2001	2002	2003	2004	2005
Structure/vehicle/brush fires	29	16	32	30	24	48	37
Vehicle accidents or extrications	86	42	49	64	40	55	44
False Alarms	60	19	29	39	43	18	15
Smoke or CO alarm	13	28	20	29	20	42	51
Public assist	19	19	22	27	15	22	22
Mutual Aid to other Depts	22	20	13	13	6	17	25
Electrical problems/ power lines	10	5	7	12	6	3	17
other	13	9	16	18	4	13	14
Total	252	158	188	232	158	218	225

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.

6. Rescue

a. Rescue Squad.

Since 1987, emergency medical services have been provided to the Town by Shelburne Rescue. Shelburne Rescue provides 24 hour emergency medical coverage. They respond to emergency calls by ambulance, aid the Shelburne Fire Department, and provide mutual aid for neighboring rescue organizations (Charlotte and

Community Facilities, Utilities, and Services

South Burlington). As well, they volunteer their services to be on hand at sporting and other community events.

Shelburne Rescue conducts public education courses on health and safety, holds public health checks, offers community first aid 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, bunk rooms, 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 48 volunteers, roughly half of whom are residents. A number of members are certified emergency medical technicians (EMTs). Of these, fifteen EMTs have earned the EMT-I designation, meaning they are authorized to administer drugs. Twelve members of the squad serve as drivers. 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) and First Responders.

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

c. Existing Level of Demand/Level of Service.

According to local officials, Shelburne Rescue responded to 519 calls for assistance in 2003, up four percent from four 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 a significant burdens on Shelburne Rescue and should be monitored. Squad officials also report that finding qualified volunteers has become a problem. Similar to the Fire Department, there are periods or blocks of time when volunteer coverage has been a problem, specifically during the workday.

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, the average response time for emergency calls is four minutes. Over the last five years, the length of the average response time has remained unchanged.

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 a growing problem. 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 are deteriorating and in need of maintenance. Expansion may need to be considered in the future if storage needs and squad needs increase.

Much of the squad's operating expenses are covered by fees accrued by payments for ambulance transports. Residents can subscribe to the rescue services annually or pay a fee per transport.

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 1970 residential accounts and 200 commercial accounts in the community. All connections are metered. The total population served is estimated at 5,642.

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.

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. Both the Town and CWD own some of the water lines within the network, with the bulk of the lines owned by the Town. 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.

Community Facilities, Utilities, and Services

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 transmission network in the town are either owned by the Town or owned privately.

c. Existing Demand/Level of Service.

As shown in Table 20, the level of general water use in the Town currently stands at about 184 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 520,000 gallons per day. Seasonally, Shelburne's consumption is lower in the winter and highest in the summer.

Table 20. Annual Water Usage in Millions of Gallons

	1999	2000	2001	2002	2003	2004	2005
Gallons Supplied by Champlain Water District	212.061	186.224	197.950	188.105	190.202	187.178	184.094

SOURCE: Shelburne Finance Director

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 management challenges. In addition, low water pressure is a problem experienced in the Green Hills neighborhood and surrounding area.

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 would not appear to be an issue. New line connections between the Wake Robin tank and neighborhoods to the east could address 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 is relocating 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. Sewer Department.

The Town of Shelburne is served by two sewage treatment facilities and a collection network managed by the 4 employees of the Shelburne Sewer Department. The provision of municipal sewage treatment services is of major importance to the environmental and economic health of the community.

b. Facilities.

Plant #1, which began operation in 1969, is located at the end of Crown Road and provides Grade II, secondary treatment facilities. The plant 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. Plant #1 currently serves 92 commercial and 852 residential accounts (serving an estimated 2198 residents). Average residential use is around 18,000 gallons per quarter.

Sewage is treated by a Sequential Batch Reactor (SBR)/chemical precipitation process, the end product of which is a dried sludge useful for humus or low-grade fertilizer. Approximately 2.6 million gallons (200,000 dry pounds) of sludge is produced annually. This sludge is transported from the plant to a composting facility in Canada. Wastewater is disinfected using ultraviolet light, with chlorine and "dechlor" backup. The outfall for the plant is Shelburne Bay. In addition to the extensive network of collection lines, the Plant #1 sewage treatment system includes 10 town owned and 1 private pumping stations.

Plant #2 is located on Harbor Road across from Davis Park and the Shelburne Community School. The Plant #2 sewage treatment network serves an area generally south of the LaPlatte River in the village and southern part of the town. Plant #2, which began operation in the 1950s, serves 83 commercial and 930 residential accounts (residential population estimated at 2402). Like Plant #1, Plant #2 is a Grade 4, secondary treatment plant utilizing the SBR/chemical precipitation process. Unlike Plant 1, Plant 2 accepts and treats septage from private waste haulers. Effluent from Plant 2 is U.V. disinfected wastewater that flows into McCabes Brook. The Plant #2 network includes 8 public pump stations and 4 major privately owned pump stations to move sewage into the system. Plant 2 produces approximately 3.2 million gallons of sludge annually. This sludge also is dewatered using a centrifuge.

In 1996 the Town passed a bond issue to expand both treatment plants 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 Plant #1 to 440,000 gpd and Plant #2 to 660,000 gpd.

Community Facilities, Utilities, and Services

c. Existing Level of Demand.

As shown in Figure 4, Shelburne’s two wastewater treatment plants currently each process roughly 135 million gallons of sewage annually, an amount essentially unchanged since 1999. With recent improvements to the Town’s wastewater treatment facilities, current demand is well below permitted levels.

According to the Shelburne Sewer Capacity Study, the characteristics of the waste treated by the plants, including the amount of total suspended solids (TSS, in milligrams per liter) and biological oxygen demand (BOD, in milligrams per liter), are consistent with government requirements. The relationship between the size of peak waste treatment flows and average daily flows is also consistent with government requirements.

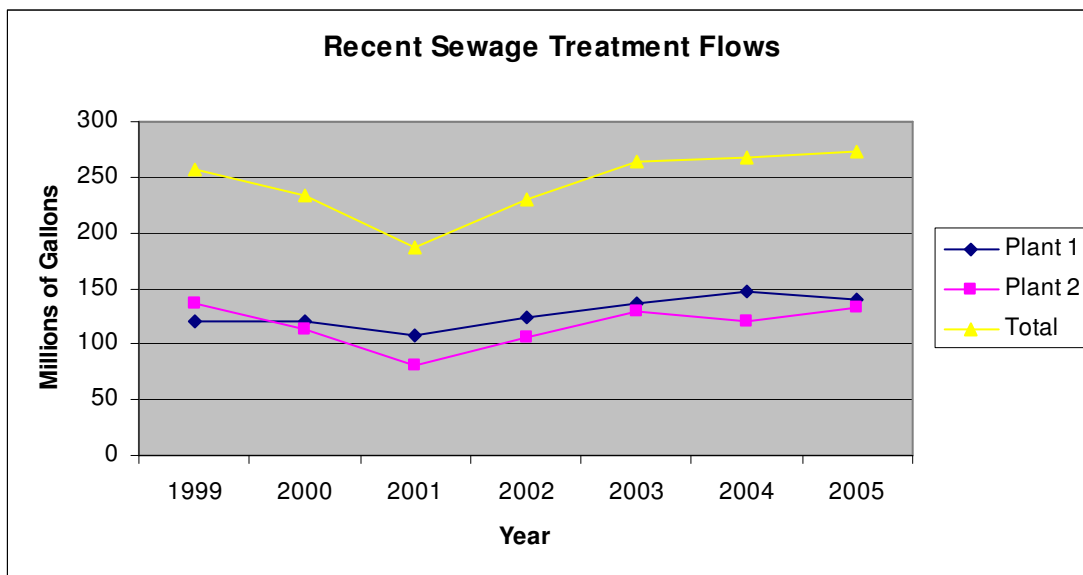


Figure 4. Sewage Treatment Levels

d. Capacity.

Figures pertaining to system capacity and future demand are presented in Table 21. This Table reflects that fact that the improvements made to both plants starting in 2000 were designed to accommodate the development anticipated to take place between 1998 and 2018. Although existing capacity at Plants 1 and 2 is currently estimated at 235,000 gallons per day, it should be noted that a portion of the wastewater treated by Shelburne’s plants is ground- and surface water which infiltrates pipes carrying wastewater but otherwise does not require treatment. Improvements to limit the amount of infiltration could significantly 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 plants) are possibly below the actual treatment capacity of the plants. 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 plants also could be connected, via a large pipe, so that any limitations in treatment capacity within the service area for Plant # 1, could be offset by the treatment capacity for Plant #2.

e. Future Demand.

Future sewer 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 plants 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 sewage 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 sewage disposal system. 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 treatment plants that now discharge into it. According to the recent 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. Thus, these facilities will retain their currently permitted loads in the wasteload allocation.

g. Sewer Allocation Ordinance

The Town has made a significant investment in a municipal sewage 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 sewer system. Maintenance of such a system can be costly. Users of the municipal sewage treatment services pay user fees to cover the costs of the service. Bonds for expansions, additions, and repairs are repaid by only the users of the service as well.

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 sewage treatment plants 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.

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.

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

Community Facilities, Utilities, and Services

Table 21. **Sewage Treatment Capacity Analysis, in Gallons Per Day**

	Permitted Flow	Actual Flows Plus Committed Flows	Flow Available
No Improvements			
Existing	1,100,000	864,424	235,576
Projected\1	1,100,000	1,100,000	0
With Infiltration Improvements\2			
Existing	1,100,000	664,424	435,576
Projected\1	1,100,000	900,000	200,000
With Future Increase in Permitted Flow\3			
Existing	1,100,000	864,424	235,576
Projected\1	1,375,000	1,100,000	275,000

\1 Forecast for 2018

\2 Daily infiltration reduced by 200,000 gallons per day

\3 Daily permitted flow increased by 25 percent

Source: Shelburne Sewer Allocation Ordinance, Shelburne Sewer Capacity Study

h. **On-Site Sewage Disposal**

In Shelburne there are some developments that rely 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. 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 system may be located on the property being developed, or it may be on another property, perhaps miles away. 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.

The prospect of development in fragile environments is a cause for 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 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.

a. Local Administration

Responsibility for stormwater management in Shelburne is overseen the Director of Public Works. Previously, responsibility for stormwater management was overseen by the Town Manager and coordinated by the Planning office, with additional support provided by other departments.

Community Facilities, Utilities, and Services

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.

c. State and Federal Stormwater Management Requirements

At the time this Plan was prepared, many of the details relating to state stormwater management requirements were uncertain, owing to recent appeals to, and decisions by, the Vermont Water Resources Board. The broad outline of state and federal stormwater management requirements is known, however. As a result of state legislation adopted in 2002, municipalities such as Shelburne likely will be required to play a significant role in clean up of “impaired waterways.” This role may include 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, the Town will be required to develop, implement, and enforce a Stormwater Management Program (SWMP) designed to reduce the discharge of pollutants “to the maximum extent practicable.” Six “minimum control measures” must be included in an 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

To address the first measure, the Town will endeavor to implement a public education program to distribute educational materials to the community or conduct 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. Representatives of several municipalities, the State of Vermont, the Chittenden County Regional Planning Commission (CCRPC), and others have agreed to address public education requirements in a cooperative fashion.

In responding to the requirements of the second measure, the public will be included in developing, implementing, and reviewing the Town’s storm water management program. The public participation process will make efforts to reach out and engage all economic and ethnic groups.

Community Facilities, Utilities, and Services

The Town will develop, implement and enforce a program to detect and eliminate illicit discharges in the course of addressing the third measure. Components of the illicit discharge program will include: creating a storm sewer system map; prohibiting, through ordinance, or other regulatory mechanism, 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.

The fourth measure cited above relates to the need for erosion control activities. To address the fourth measure, Shelburne will develop, implement, and enforce a program to reduce pollutants from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of storm water discharges from construction activity disturbing less than one acre will 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 measure also relates to the need for erosion control activities. In responding to the requirements of the fifth measure, the Town must 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. Finally, to address the sixth measure, a community must 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.

d. Local Stormwater Regulation.

Shelburne's subdivision regulations already contain 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.

Community Facilities, Utilities, and Services

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, and a major electric power transmission project has been proposed. Natural gas, available to residents and businesses along Route 7 and within Shelburne village, is supplied by Vermont Gas. Communication services are provided by Verizon, other “landline” and mobile telephone and internet service companies, and the cable company (Adelphia).

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). 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 existing 34.5 KV transmission corridor runs through Shelburne from north to south, with a major substation on Harbor Road. VELCO is currently proposing to establish a 115 KV transmission line in a parallel/overlapping corridor. This proposal has been approved by the Vermont Public Service Board (PSB), with conditions following evaluation of the 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 permitting and “post certification” processes. For a variety of reasons, including impact on aesthetics, economics, and wildlife, the Town has argued that portions of the corridor should be relocated and, further, that portions of the line should be buried underground.

The VELCO proposal is intended to provide system reliability. (VELCO’s filing does not indicate that the project is being pursued to “wheel” commercial power from Hydro-Quebec to southern New England.)

Community Facilities, Utilities, and Services

Several Section 248 review criteria pertain to issues of interest to residents of Shelburne. This Plan should be a resource to the Town and to the PSB in the course of future Section 248 proceedings.

b. Gas.

Vermont Gas is in the process of expanding its service area in Shelburne. The area planned for service is depicted in the Existing and Proposed Electrical Transmission Facilities and Natural Gas Service Area Map (Map 28).

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.

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.

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:

Community Facilities, Utilities, and Services

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.

According to the 2000 Census, there are 574 children under age 6 in Shelburne, of whom 264 (46 percent) reside in homes where all parents are in the labor force. There are another 754 children between age 6 to 12. The percentage of these children residing in homes where all parents are in the labor force ranges from 46 percent to 78 percent.

According to the Child Care Resource Referral Database, supplemented by contacts with Shelburne child care programs, there are six licensed centers in Shelburne. These centers offer 348 slots and currently serve 340 families. In addition, there are currently four home/family child care programs in Shelburne, offering a total of 42 slots. After-School Care options include 50 slots at the Shelburne Community School and 18 slots at 2 centers with after school child care.

Shelburne residents make extensive use of these various types of child care. Of the 25 families served by family-based child care, 14 (56 percent) reside in Shelburne. Of 340 families served by licensed centers, 157 (46 percent) reside in Shelburne. Full day programs are somewhat more heavily used than part-time programs. For example, of the 157 families served by day care centers, 89 families (57 percent) are enrolled in full-day programs representing 121 children, while 68 families (43 percent) are enrolled in part-day programs representing 68 children.

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.

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

Community Facilities, Utilities, and Services

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 of the key projects identified by residents as a result of the public involvement process known as STAT.

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. As private truckers make their first pickups in Shelburne and likely make stops in other localities before emptying their trucks in Williston, it is difficult to estimate how much of the landfill's waste is contributed by Shelburne.

The Chittenden Regional Solid Waste Management District (CRSWMD), of which Shelburne is a member with 14 other Chittenden County communities, is working towards the resolution of solid waste disposal matters. Formed in 1987, the CRSWMD'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 CRSWMD 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 CRSWMD to address its solid waste disposal needs.

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 22, the total expenditures associated with the operation of the Town's facilities and services have grown from \$2.2 million in FY 1996 (1995-96) to \$3.7 million in FY 2003 (2002-2003), or by 69 percent. Some of the increase is as a result of growing debt service. Excluding costs related to debt service, expenditures have grown from \$2.1 million in FY 1996 to \$3.1 million in FY 2003, or by 49 percent.

Community Facilities, Utilities, and Services

Table 22. TOWN OF SHELBURNE GENERAL FUND BUDGET EXPENDITURES

ITEM	FY 96 1995-96 ACTUAL	FY 97 1996-97 ACTUAL	FY 98 1997-98 ACTUAL	FY 99 1998-99 ACTUAL	FY 2000 1999-00 ACTUAL	FY 2001 2000-01 ACTUAL	FY 2002 2001-02 ACTUAL	FY 2003 2002-03 ACTUAL	Percent Change	TOTAL
SELECTBOARD										
SUB-TOTAL SELECTBOARD	10,597	10,188	11,638	13,824	13,399	13,072	14,042	14,446	36%	
Legal Expense	38,588	55,894	30,034	31,007	22,434	60,462	87,578	30,546	-21%	406,543.02
MANAGER'S OFFICE										
SUB-TOTAL MANAGER'S OFFICE	101,560	108,523	113,414	119,358	123,054	150,003	100,629	98,491	-3%	
ELECTIONS										
SUB-TOTAL ELECTIONS	7,301	8,575	4,347	9,619	2,426	13,520	3,969	16,918	132%	
FINANCE & INSURANCE										
SUB-TOTAL FINANCE & INSURANCE	163,348	153,943	151,744	143,742	148,225	172,622	216,735	243,176	49%	
TOWN CLERK/TREASURER										
SUB-TOTAL TOWN CLERK/TREASURER	69,368	77,475	85,910	94,054	96,493	105,985	109,541	124,387	79%	
PLANNING & ZONING										
SUB-TOTAL PLANNING & ZONING	63,143	75,376	73,897	81,343	85,159	96,130	104,204	135,202	114%	
ASSESSING										
Reappraisal Contract						60,000				
SUB-TOTAL ASSESSING	25,299	30,154	27,082	29,234	28,011	86,949	73,532	78,355	210%	
BUILDINGS & GROUNDS										
Village Center Utilities/Maint.				30,779	40,871	28,207				
SUB-TOTAL BUILDINGS & GROUNDS	63,343	75,171	83,000	96,774	107,005	100,847	151,904	155,200	145%	
POLICE										
SUB-TOTAL POLICE	464,499	488,516	550,360	564,382	614,160	611,657	621,064	720,267	55%	
FIRE DEPARTMENT										
SUB-TOTAL FIRE DEPARTMENT	56,529	74,872	81,897	84,629	80,414	82,082	84,747	77,575	37%	
PUBLIC SAFETY & DISPATCH										
SUB-TOTAL PUBLIC SAFETY & DISPATCH	160,382	175,549	184,621	218,616	222,559	229,701	219,589	206,929	29%	
HIGHWAY										
Capital Construction Projects	13,108	18,317	13,316	60,836	35,472	38,807	25,920	70,052		
Sidewalk Construction	10,000	10,729	10,000	10,000	10,000	10,000	19,333	22,117		122,178.32
Rte 7 / Village Sidewalk Project							103,923	44,492		148,415.82
SUB-TOTAL HIGHWAY	464,166	468,700	522,973	589,681	650,173	687,348	815,164	798,795	72%	
HEALTH & SOCIAL SERVICES										
SUB-TOTAL HEALTH & SOCIAL SERVICES	24,260	24,800	26,180	26,674	26,866	27,335	31,808	32,050	32%	
RESCUE										
SUB-TOTAL RESCUE	44,238	54,244	46,491	59,333	69,340	70,740	82,685	64,156	45%	
CEMETERIES										
SUB-TOTAL CEMETERIES	21,874	21,795	19,420	23,024	22,697	26,944	27,082	30,106	38%	
RECREATION										
SUB-TOTAL RECREATION	70,094	61,055	66,361	106,845	129,623	137,441	151,192	199,577	185%	
LIBRARY										
SUB-TOTAL LIBRARY	81,906	84,991	83,908	107,471	101,408	101,667	113,993	138,425	69%	
	2,207,323	2,369,837	2,502,333	2,753,223	2,910,022	3,163,123	3,522,849	3,724,898	69%	

SOURCE: Shelburne Finance Department

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 2005, the capital budget and program proposes \$11.1 million of general fund expenses for projects carrying a total price tag of \$38.7 million dollars. By far the largest component of the capital budget is related to school 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 goal of the Shelburne School Board to “provide the tools to offer the Shelburne community the highest quality public education.” 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 and participate as informed citizens in a global society. 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 May 2003/2004 enrollment of 872 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 recently been expanded to an estimated capacity of over 1400 students. In the 2003/2004 school year there were approximately 1300 students enrolled.

The former Village School has been extensively renovated to become a Town Center housing Shelburne’s municipal government. The stage and gym have been updated and are used for community and school programs. CSSU administration offices are located there as well. The Shelburne School District sold the former Village School to the Town of Shelburne in 2004.

Education

3. Enrollment

Enrollment at SCS climbed to 905 students by 2000, even further beyond school capacity. Four leased mobile classrooms were added to contain this student increase. The Shelburne School District is in the process of purchasing these mobile units in lieu of leasing as enrollment projections suggest a long term, if not permanent, need for them. Since 2000, there has been a slow decline in pre K-8 enrollment. SCS enrollment is expected to continue to decline at least for another year but then is projected to increase for a number of years based on greatly expanded new housing construction. See Table 23.

Table 23. Student Enrollment History and Projections

Champlain Valley Union High School (Grades 9-12)		
Year	Total # of Students (Dec)*	Shelburne Students
1997-98	1062	313
1998-99	1105	312
1999-20	1173	317
2000-01	1170	305
2001-02	1221	320
2002-03	1259	350
2003-04	1309	358
2004-05**	1370	370
2005-06**	1346	355 ***
2006-07**	1370	370 ***
2007-08**	1397	375 ***
2008-09**	1402	380 ***
2009-10**	1414	385 ***

Shelburne Community School (Grades pre K-8)	
Year	# of Students (Feb)*
1997-98	830
1998-99	861
1999-20	882
2000-01	905
2001-02	883
2002-03	884
2003-04	866
2004-05**	860 ***
2005-06**	860 ***
2006-07**	870 ***
2007-08**	880 ***
2008-09**	885 ***
2009-10**	890 ***

* Includes tuition and other ** Projection *** Birthrate decline offset by planned new homes

Source: CVU—CVU School Board 2003/2004 Annual Report; SCS, Shelburne CVU students—Shelburne School Board

In addition, the last three years have seen substantial growth in Shelburne students attending CVU high school. This CVU increase is expected to continue for another year but then begin to level off before increasing again. Table 23 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.

4. Financing

Act 60 has had a major impact on school funding and education taxes. The recently enacted Act 68 has reduced this burden by reducing the amount of the “sharing” contribution Shelburne must make to the Vermont Education Fund. However, the effective sharing amount is still substantial so the education tax impact to Shelburne will continue to grow as expenses increase. The other significant 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. As Shelburne property sale’s values continue to be greater than assessments, even after the recent reappraisal, the Shelburne CLA will continue to be reduced and will result in increased tax rates.

B. TRENDS AND ISSUES

1. Growth and School Needs

The building expansion recently completed at CVU is expected to meet the needs of the CSSU member student population at least through 2010. Shelburne Community School student projections would normally continue to decline based on birth rate analysis as projected by NESDEC and a consultant Bill Smith. However, there are a number of large approved housing projects that are projected to more than offset this decline. These building projects are projected to add at least 100 to 200 students upon completion and occupancy. These additional students will continue the overcrowding situation at the Shelburne Community School that otherwise have begun to ease and provide opportunities for an improved environment, ways to reduce costs and solve current space problems.

SCS is currently severely lacking appropriate space in core areas such as the cafeteria, room for auxiliary services for students, Science labs, space for Living Arts and Technical Education, an art room for the middle school art program, appropriate and sufficient space for classrooms, storage for all of the school supplies and materials, and an appropriate number of bathrooms for a school of this population and enough classrooms within the school itself without requiring mobile classrooms. As student enrollment increased in the past, core areas were replaced by classrooms and it was initially anticipated that these core areas could be restored to their original program roles once the decline in birth rate took affect. Based on current enrollment projections due to new housing construction, we cannot reclaim this space. The only way this is now possible is to add space to SCS or build a new building. The projected growth from the new approved housing units required the Shelburne School Board to take immediate steps to revamp the cafeteria/kitchen layout in order to serve more students, make the mobile classrooms permanent and hire an additional teacher. The Board and SCS Administration are now in the process of developing a plan to provide solutions to the many infrastructure space problems that will continue into the foreseeable future. There may be resulting impact of SCS growth on CVU, particularly if other CSSU towns also experience more than their current projections.

Education

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 growth that SCS is now expected to face. In addition, impact fees are also required to support current expansion underway at CVU which is partly driven by the increase in students coming from Shelburne. 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.

It is the intention of the Shelburne School Board to develop plans to solve current space problems and to increase both the classroom and core infrastructure capacity to accommodate the **2010** projection of **890** students. These plans will support expansion projects to the current Shelburne Community School facility. However, if additional large scale housing projects beyond those currently approved are planned, there will likely be a need for a much more substantial building project either on the current SCS site or in some other location in Shelburne. These same growth impacts will apply to CVU as well and may not be covered in current CVU expansion projects.

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. As noted in a report by the Environmental Protection Agency (*Travel and Environmental Implications of School Siting*),

According to the US Department of Education, student enrollment is expected to increase by one million from 2000 to 2006. In addition, many older and historic schools need to be modernized to meet today's educational and technology requirements. To meet this enrollment demand, communities will need to build new schools and renovate older and historic schools. Increasingly, communities recognize that the decisions school districts make with respect to size, design and location of new and renovated schools will have a visible impact on a community's education, environmental and physical health, as well as community character, traffic congestion, and neighborhood vitality. In response, many states and communities are looking for ways to keep schools in their neighborhoods, close to students and the communities they serve. Further, even communities not facing school construction questions are increasingly concerned about the decline in walking and biking to school.

Clearly, planning for schools has implications that spread far beyond the student, parent, teacher, and school official populations. Cooperative planning is to be encouraged. As stated in the report *Schools As Centers Of Community: A Citizen's Guide For Planning And Design* (2003; National Clearinghouse for Education Facilities),

Every member of society has a vital stake in the healthy development of today's students and tomorrow's parents, workers, and citizens. Strategic, collaborative thinking can do a great deal to ensure the kinds of learning environments that will improve academic outcomes and strengthen communities.

X. ENERGY

A. PROFILE AND ANALYSIS

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.

1. Energy Use Patterns

Road transportation currently accounts for 42 percent of Vermont's total delivered energy use, while space heating accounts for 28 percent. Energy use for water heating and process heat (industrial) are about equal at 8%-9% of the total, and all other end uses have much smaller shares. As noted in *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. 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)."

Other end uses require significantly less energy than road transportation and space heating. 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%. All other end uses have increased their energy consumption since 1976, most notably air conditioning (125%), motors for industrial purposes (121%), miscellaneous electricity end uses (90%), and lighting (60%).

Unfortunately such Shelburne-specific data are not available. The Decision Support System attempts to generate Town level estimates for energy consumption. According to the DSS, Shelburne residents consume 104 Million British Thermal Units (MMBTUs) per year per capita for housing and auto travel.

2. Energy Sources

Transportation is the largest single energy application in Vermont. However, there is little Shelburne-specific information available on the amount of energy used by local residents and businesses for transportation purposes. Gasoline and diesel are the primary transportation fuels used in Vermont. According to the Census Bureau, more than 97 percent of Shelburne households owned a car or truck in 2000. Most households owned at least two vehicles, and 18 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.

As noted above, 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. 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

Electric power is distributed locally along all significant public rights-of-way. The local utility, Green Mountain Power (GMP), provides electricity to 2682 residential premises and 408 commercial and industrial premises, 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. A proposal by the Vermont Electric Power Company (VELCO) to upgrade these transmission lines and the substation located near Harbor Road has been the subject of extensive discussion in recent years. The Town has been actively involved in Public Service Board (PSB) hearings on the project, primarily to address concerns regarding aesthetic impacts. Although the PSB decision on the project directed the developer to place portions of the upgraded power lines underground, the Town is continuing to participate in the review of the project. It is the position of the Town that the project as originally proposed would have an undue adverse impact on the aesthetics of the community. 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.

Vermont Gas currently provides natural gas to 720 homes and 150 businesses, representing saturation rates of 26 percent and 51 percent, respectively. 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.

Although solar, wind, and wood supply a small fraction of the energy used in Shelburne, interest in these renewable energy sources appears to be growing. 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). As the cost of non-renewable energy increases, interest in renewable sources will continue to grow.

B. TRENDS AND ISSUES

1. 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). 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.

There is considerable scientific literature describing how changes in density affect energy usage. This literature, much of which pertains to land use density, may provide insights into how changes in land use in Shelburne are affecting energy usage. According to researcher Todd Litman of the Victoria Transport Policy Institute,

Density affects travel patterns in several specific ways. For example, density increases proximity between common destinations, increases travel choice (high density clustering in particular tends to improve the quality of walking conditions and public transit service), increase traffic and parking congestion and increase parking prices. Which of these has the greatest influence on travel varies depends on circumstances. Crane (1999) and Boarnet and Crane (2001) suggest that the best way to predict how land use factors will influence travel is to consider their influence on individuals: changes that increase the convenience or reduce the costs of travel by a particular mode will encourage its use, and changes that increase reduce the convenience or increase cost of a particular mode will reduce its use

Litman goes on to explain that

increased density and clustering tends to reduce per capita automobile ownership and use, and increase use of alternative modes (Jack Faucett Associates and Sierra Research, 1999; Holtzclaw, et al., 2002; Ewing, Pendall and Chen, 2002; Kuzmyak and Pratt, 2003; TRL, 2004). Data from the National Personal Transportation Survey shown in the graph below indicates that residents of higher density urban areas make about 25% fewer automobile trips and more than twice as many pedestrian and transit trips as the national average. Bento, et al (2004) conclude that residents reduce their automobile travel by about 25% if they shift from a dispersed, automobile-dependent city such as Atlanta to a more centralized city, multi-modal city such as Boston, holding other economic and demographic factors constant.

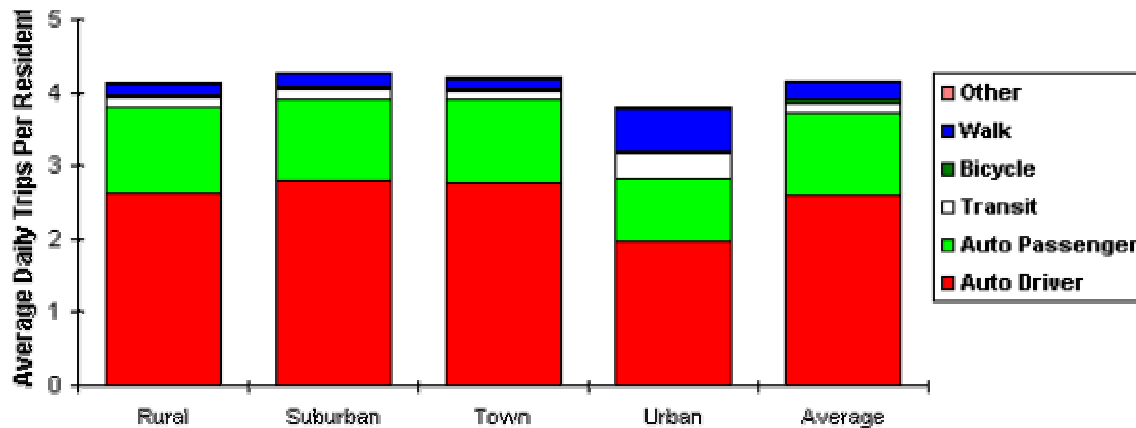


Figure 3 Average Daily Trips Per Resident by Geographic Area

Source: National Personal Transportation Survey, 1995)

Energy

2. Trends

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.

According to the State Energy Plan, the gap between transportation and residential energy consumption will continue to widen, as transportation energy use increases by 69 percent while residential use grows by only 21 percent between 1990 and 2015. Residential use increases slowly in the future partly as a result of gains made by appliance efficiency standards and the fact that new homes are usually more efficient than old ones. Energy consumption in the commercial and industrial sectors increases fairly quickly, but remains low compared to use in the residential and transportation sectors.

According to the State Energy Plan, energy consumption will increase among virtually all end uses but increase faster for road transportation than for any other major end use. Road transportation energy use might rise 72 percent between 1990 and 2015; by contrast, energy consumption for the next largest end use, heating, might rise only 30 percent during the same time-frame. Several end uses are projected to experience growth rates between 50-60 percent, including water heating, process heat (industrial), motors (industrial), lighting, drying, and miscellaneous electric loads.

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 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.

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 adoption of Shelburne's Comprehensive Plan in 1999 (e.g., Charlotte in 2002, Hinesburg in 2003, Williston in 2001, South Burlington in 2001), 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. It also notes the need to avoid development pressures along its northern boundary with Shelburne. Shelburne also wants to keep Route 7 relatively free of development south of the Shelburne Village, so that a gateway of open space is maintained.

The Rural 2 District, along the Charlotte/Shelburne border west of Route 7, does allow limited types of commercial development but only with sizable setbacks, open space requirements and clustering to protect views. The Residential zone, extending from Spear Street to just west of Mount Philo Road along the Charlotte/Shelburne line, will be kept at a lower density so that no abrupt transition is experienced as the town line is crossed. 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 the latest version of Charlotte's Plan, the goal and objectives of the Natural and Visual Resources and Land Conservation section of this Plan (Vol. II, pp.13-14) are consistent with Charlotte's goals.

B. HINESBURG

The Town of Hinesburg is southeast of Shelburne. The eastern fifth of Shelburne's southern border is shared with Hinesburg. Shelburne's Rural designation along the border is consistent with the designation in the Hinesburg Town Plan. Indeed, as noted in the new Hinesburg Plan,

An important element in the adoption of this plan has been to consider how the Town relates to the development trends of surrounding towns and the region as a whole. Hinesburg's land use patterns, particularly along its eastern and western boundaries, are very similar to those of surrounding towns.

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 the goals of this plan" (Hinesburg 2003 Town Plan, p.58).

Plan Compatibility

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.

Historically, the St. George town plan has included designation of a village district which abuts the Shelburne town line east of Route 116. This 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.

The Williston Comprehensive Plan shows the land along this border as designated for Agricultural/Rural Residential development. It goes on to state:

The Shelburne Town Plan shows land along this border designated for Rural-1 development. A short distance to the south of the border is Shelburne Pond, which is surrounded by land designated as a Conservation area. Neither town anticipates other types of development along the highway. There should be no conflicts in this area.

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, including IDX Systems on Shelburne Road and the Burlington International Airport. 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 consistent with the South Burlington plan 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 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.

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.

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. As noted in South Burlington's Plan:

It is the goal of this City to promote a pattern of land use and development that respects and maintains the open space 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.

The overall density of growth permitted in the SEQ under South Burlington's Plan has the potential to reduce the desired effect of Shelburne's Plan for the northeast corner of the Town. 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 recognizes 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.

MAPS

APPENDICES
