

NORWICH IN THE 21st CENTURY

THE NORWICH TOWN PLAN

MAY 10, 1996

**AMENDED & RE-ADOPTED
JUNE 26, 2001**

**AMENDED & RE-ADOPTED
September 27, 2006**

**TOWN OF NORWICH
NORWICH, VERMONT**

NORWICH IN THE 21st CENTURY

THE NORWICH TOWN PLAN

CONTENTS

Chapter 1. Introduction

Chapter 2. Background

 2.1 Historical Sketch of Norwich

 2.2 Town Profile

Chapter 3. Land Use Plan

Chapter 4. Taxes, Growth, and Fiscal Capacity

Chapter 5. Natural and Historic Resources

Chapter 6. Educational Facilities

Chapter 7. Housing Plan

Chapter 8. Community Facilities and Services Plan

Chapter 9. Transportation Plan

Chapter 10. Energy Resource Conservation Plan

Chapter 11. Regional Planning

Chapter 12. Implementation Plan

Appendix. Maps

Chapter 1

INTRODUCTION

PURPOSE OF THE TOWN PLAN

The Norwich Town Plan provides a framework to guide the future growth and development of the community, taking into account existing conditions, tax structures, and trends within the town and region which necessarily provide some boundaries, as well as presenting the goals and visions of its residents. The Plan states the Goals, Objectives, and Policy Recommendations for future action, without making decisions or dictating specific actions.

The Plan will assist the Selectboard, Planning Commission, Conservation Commission, and Norwich Residents in defining and directing the future growth and development of Norwich over the next 5 to 10 years and will serve as the foundation for revising the Zoning Regulations and Subdivision Regulations. It is a guide and a resource for any proposed community development programs, and for the direction and content of other local initiatives.

The Plan may be used by Vermont's District Environmental Commission for review of Norwich development projects under the jurisdiction of Act 250. It will also be a source of information and a long-term guide by which to measure and evaluate public and private proposals that affect the physical, social, and economic environment of the community.

NORWICH TOWN PLANNING PROCESS

The process for preparing Norwich's fifth Town Plan began in 1989 with the formation of seven committees to create a "vision statement," gather information, make inventories, and propose goals, objectives, policies, and recommended actions. The committees were Land Use, Transportation, Community Facilities, Town Services, Community Development, Environmental and Natural Resources, and Capital Budget. Over 200 residents of Norwich participated on these committees, attending regular meetings and spending many hours collecting data and researching issues.

In 1990, a four-page questionnaire was distributed to the residents of Norwich to determine their attitude towards various town growth issues. There were 546 responses

NORWICH TOWN PLAN

and these were used by the committees in the process.

The final reports and inventories of the committees were presented to the Planning Commission in 1991. The Planning Commission began an evaluation of the reports in conjunction with committee chairmen. In the process of evaluating this information, particularly regarding growth and property tax issues, the Planning Commission decided more information and research were needed and retained Douglas Kennedy & Associates to prepare a report utilizing 1990 U.S. Census data and other data that had not been available to the committees. Several chapters in this plan are based on their report, while the others are based on the reports of the Town Plan committees. The actual committee reports and inventories are available in the Norwich Planning Office.

FORMAT OF THE TOWN PLAN

The plan is organized into 12 chapters, nine of which correspond to the required elements of a town plan. The additional chapters have been included to provide background material. A summary of Goals, Objectives and Policies, and Recommended Actions is included at the end of most chapters. These terms are being used as defined by the State in their Planning Guide:

Goals - statements of human aspirations that have an attainable end.

Objectives - specific, measurable targets for accomplishment of goals within prescribed periods of time.

Policies - definite courses of action adopted and followed by a government, institution, body, or individual for the attainment of desired objectives.

Recommended Actions - ongoing activities consistent with courses of action set forth in policy statements and designed to achieve specific objectives.

STATUTORY BASIS FOR THE TOWN PLAN

The Vermont Municipal and Regional Planning and Development Act, Title 24 Vermont Statutes Annotated, Chapter 117, enables Vermont Municipalities to establish Planning Commissions and to prepare Municipal Plans. Through the Act, the Planning Commission is empowered to implement the plan once it is legally adopted by the Town of Norwich.

HISTORY OF PLANNING IN NORWICH

- 1968 - First Town Plan adopted
- 1971 - Zoning Regulations adopted
- 1975 - Town Plan adopted
- 1975 - Zoning Regulations adopted
- 1980 - Town Plan adopted
- 1981 - Zoning & Subdivision Regulations adopted
- 1986 - Town Plan adopted
- 1990 - Zoning & Subdivision Regulations adopted
- 1992 - Zoning & Subdivision Regulations amended
- 1996 - Town Plan adopted
- 2001 - Town Plan re-adopted - Wireless Communications Amendment
- 2006 - Town Plan re-adopted - Child Care Amendment

Chapter 2.1

HISTORICAL SKETCH OF NORWICH

EARLY SETTLEMENT

Norwich is one of four adjoining towns in the Upper Valley to receive charters granted on July 4, 1761, by Governor Benning Wentworth. The other towns are Hanover and Lebanon, New Hampshire, and Hartford, Vermont. Norwich's first settlers came, as did those of the other towns, principally from north central Connecticut; they travelled northward almost 200 miles up the Connecticut River and, in many cases, named their new towns for their previous ones.

Generally, the men whose names appear on the charters - the grantees or proprietors - were not the ones who settled the new land, but were the older and more established inhabitants of their Connecticut towns; the younger men, those with the strength and skills to be pioneers, to build sawmills and gristmills, to clear the forests, were the ones to undertake the hardships of the move. In 1763, a few settlers came to Norwich and located close to the river and in the Pompanoosuc area. The first clearing in the township was made by John Fenton and Ebenezer Smith, both proprietors, and Fenton's nephew John Slafter, son of proprietor Samuel Slafter.

The exploration and "sizing up" of the chartered township, which was "to contain six miles square, and no more," began in 1764. Jacob Burton of Preston, encouraged by the proprietors in Connecticut, made the journey north. He had the knowledge and the ability to build and operate a mill, take the measure of the region, and survey. He determined suitable spots on Blood Brook for a sawmill and a gristmill. The location of roads and lots needed to be planned, and there were other conditions laid out in the Norwich town charter with which the settlers would have to comply. Burton's own permanent dwelling was constructed in 1767.

Among other early comers to Norwich were Samuel and John Hutchinson, who arrived in 1765. They cleared an island in the Connecticut River, planted corn on it, then returned to Connecticut; the next year they came to stay. Nathan Messenger also arrived in 1765; his cabin is thought to have been located near the Norwich end of the Ledyard Bridge.

The confluence of the Ompompanoosuc and the Connecticut Rivers came to be known as Pompanoosuc. Union Village in the northeastern part of the town, is also on

NORWICH TOWN PLAN

the Ompompanoosuc. By 1795, a gristmill had been established there. Beaver Meadow (West Norwich) now a small community, had its beginning in 1780 when its first settler, Conant B. Sawyer, came from Hebron, Connecticut. Lewiston, of which little remains, was located near the west end of the Ledyard Bridge. Dr. Joseph Lewis settled here near the bank of the Connecticut River in 1767 and owned much of the surrounding land. It was here that an early ferry provided transportation to the Hanover side of the river. John Sargeant, the original operator (at least as early as 1771, and probably in 1770) had a continuing conflict with Dartmouth College founder Eleazar Wheelock over the ferry and because Sargeant's tavern apparently provided liquor for Wheelock's students. Lewiston's demise came with the construction of the Wilder Dam in 1950 and of Interstate 91 in 1968.

Norwich Center must be remembered for several reasons. It was here, on Meeting House Hill, that Peter Olcott built his first house and barn in 1773. Olcott was a leading citizen of the town, serving in various town and state offices, including that of lieutenant governor; he was also a trustee of Dartmouth College. The first church in Norwich was built at the Center on land given by Olcott. Begun in 1778, it was finally finished in 1785. For about two weeks that same year, the Center Church served as the meeting place of the Vermont legislature. All that remains now of Norwich Center is the burial ground on Meeting House Hill and whatever archeological evidence remains of some 10 homes, shops, and offices.

Union Village, Pompanoosuc, Beaver Meadow, and Lewiston are all rather clearly defined places, but in addition there are settlements that did not develop business or commercial places. Rather, they are distinctive and more nearly *neighborhoods*: Podunk, New Boston, and Tiger Town.

POPULATION AND MIGRATION

Norwich now has a population of over 3000. Historically, the growth of the town reflects trends elsewhere in the state and in the New England region, and has been influenced by events throughout the country. Over 150 years ago, the town's population figures approached today's level. In 1830, the census counted 2316 persons. After that date the count went down with a low of 1092 in 1920. The 1830 figure was not reached or surpassed again in a decennial census until 1980 when a count of 2398 persons was registered. (See Chapter 2.2)

While Norwich was becoming increasingly settled, land in the northern part of

the state was being opened up to development. The movement that brought settlers from Connecticut to the region we now know as "the Upper Valley" was repeated, as residents of Norwich set out to settle further north. The movement actually began quite early; for example, in 1803, after having lived in Norwich for some twenty years, Captain Benjamin Burton with his family moved on to Irasburg in Orleans County. Though they might not always move, Norwich residents were also active in organizing other towns. Thus, we find that the proprietors of Randolph, Vermont, were in large part from Hanover and Norwich. *A History of Norwich, Vermont* (1905) by M. E. Goddard and H. V. Partridge notes that (p. 135) "the evidences of depopulation and disappearance of houses in Norwich seem to be especially marked at Beaver Meadow, and along the 'turnpike,'"

In the earlier portion of the nineteenth century, agricultural and forestry practices shared in creating the conditions that made people living in Norwich seek new and unused lands. The significance of good resource management had not yet been realized to any extent either locally or nationwide. In 1840, for example, Norwich grazed over 13,000 sheep. Sheep are close croppers and can quickly reduce the value of a hillside. Just as local people left the town for places further north in the state, so residents were enticed by the opening of the West with its vast natural resources. Jasper Murdock set out as early as 1801 with his family, including his father-in-law, the Reverend Mr. Lyman Pottaer who had been the town's first settled Congregational minister, to journey to Ohio (Northwest Territory). Here Murdock became a land speculator. The move of settlers westward whether into New York State, Pennsylvania, or beyond continued into the early twentieth century and to such an extent that emigrant aid societies were frequently formed and guidebooks were published for those undertaking the trek.

EDUCATION

Looking at Norwich's 200 years of history, a concern for education can be identified from the beginning. The Vermont Constitution of 1777 had specified that each county should have a grammar school. Windsor County built the first in 1785, located in Norwich. Between 1785 and 1841, twenty school districts were formed and these can still be identified on maps such as the one in the Beers' *Atlas of Windsor County* (1869). Some of the old schoolhouses survive as present-day dwellings.

In 1819, Captain Alden Partridge, a graduate of the U. S. Military Academy at West Point and its superintendent from 1815 to 1817, returned to his native town of

NORWICH TOWN PLAN

Norwich and established the American Literary, Scientific and Military Academy. From 1825 to 1829, Partridge moved the school to Middletown, Connecticut, where he hoped to find a greater potential and larger financial base; however, the school then returned to Norwich. In 1834, it was incorporated as Norwich University. During the next thirty years, the university had its ups and downs for apparently Partridge was not as good a businessman as educator; he also quarreled with Truman B. Ransom, who succeeded him as president. Then, in 1866, the South Barracks building was destroyed by fire. When the town of Northfield, Vermont, offered both a location and buildings the university accepted the invitation to move there. Allen Foley, writing in *Some Pages of Norwich History* (1961) says that "Captain Partridge may fairly be called the 'Father of Civilian Military Training' and the founder of that system of education, both at the secondary and collegiate level, which combined civilian and military studies to the end of producing an enlightened and effective citizen-soldiery as essential, he believed, to the maintenance of free government". (p. 45) The Norwich Classical and English Boarding School, a relatively short-lived enterprise, occupied the North Barracks after the university's departure. It operated from 1867 to 1877. The North Barracks burned in 1898, thus ending a dominating presence on the Norwich Green.

Over thirty years ago, in 1963, Norwich and its Hanover neighbor joined together in the first interstate school district in the country, to form the Dresden School District. Its first annual report noted that the two towns had "been impelled by common difficulties toward a cooperative solution of school problems."¹ The district was established as an interstate compact by Public Law 88-177. This first report concludes with the following: "For over two hundred years Hanover and Norwich have been a single community in a social and human sense, so that the political union is new only in legal terms It is not even the first political association in which we have shared. The district was named Dresden in remembrance of the first one." (p. 81)

Explanation of the phrase "the first one" goes back to the late eighteenth century and to complicated circumstances. During this time, the Wentworth governors of the Province of New Hampshire, Benning and John, had chartered many townships on both sides of the river; much of this territory was also claimed by the royal governors of New York who granted townships on much of the territory already holding Wentworth

¹ The text quoted appears in the Dresden School District Report of Boards of Directors as it appears printed in the collected Annual Reports Hanover, NH, For The Year Ending December 31, 1963, and specifically in the Annual Report School District, p. 79.

charters. Added to this complication was growing discontent on the western border of New Hampshire along the Connecticut River which reflected the feeling that at Portsmouth on the eastern shore the seat of government was not representing the western region adequately. Dartmouth College had been prominent in opposing the Portsmouth lawmakers. It also had long wanted to separate out the College section of Hanover as its own town. This latter goal was accomplished in 1778 and the name Dresden was given to the college part of town. Under the leadership first of Wheelock, and then of Bezaleel Woodward when Wheelock's health began to fail, Dresden led the movement in which sixteen New Hampshire towns along the Connecticut River left the province and joined the republic of Vermont, a union lasting until 1783. The politics of the situation were made even more complicated by the players, who included the often devious Allen brothers, Ethan and Ira, the "Bennington Party," and partisans of New York.

Of interest to Norwich is the Dresden Press which flourished in Dresden (Hanover). In 1770, it published Abel Curtis's *A Compend of English Grammar*. Curtis had come to Norwich from Lebanon, Connecticut. He graduated from Dartmouth College in 1776, the first to do so from Norwich. During his short life--he died at 28--he served in both town and state office. His grammar, according to Goddard's *History of Norwich, Vermont*, is supposed to be the "first literary production of a Dartmouth graduate" as well as "the first purely English grammar written and published in America" (p. 195).

ECONOMY

Industry was supported by natural resources in Norwich. Business partnerships developed along the river; the trade of timber and its by-product, potash, in exchange for rum, molasses, and sundries was especially lucrative between Norwich landowners and merchants in Springfield, Massachusetts and Hartford, Connecticut. As merchantable lumber dwindled, however, emphasis shifted to agriculture based on wheat and other grains. In 1810, merino sheep were brought to Vermont and, by 1830, Norwich, like many other New England towns, was raising them by the thousands. The wool and the breeding stock itself were eagerly sought and easily transported elsewhere; wool commanded high prices, particularly during the Civil War when the supply of cotton was cut off and armies had to be clothed. During this time, wool was valued at \$1.00 per

NORWICH TOWN PLAN

pound versus today's value of about 25¢ per pound. That boom was over in the late 1860's, complicated by tariff manipulations and unbeatable competition, first from our own West, then from Australia.

When dairy herds were introduced at the end of the century, the pastures yielded new productivity. Though not clean sweepers like sheep, cattle demanded more silage (thus more hayfields) and larger barns. The growth of the milk industry was gradual in the late 1800's but, once secure, it caused a visual revolution in the landscape and helped slow down the drop in population. A typical mid-19th century Norwich farm consisted of about 150 acres, of which 125 were improved and 25 unimproved (forest). By 1940, it is estimated that one-half of the town's land was improved. The trend away from agriculture is reflected by the fact that, by 1980, less than 30% of the land was improved.

In addition to shifts in agriculture and the impact of Dartmouth College and Norwich University, three technological advances affected the history of Norwich: construction of the Connecticut and Passumpsic Railroad, the Wilder Dam, and Interstates 91 and 89. Finished in 1848, the railroad connected the upper Connecticut River valley to tracks across the country. When White River Junction became the region's principal rail head, Norwich farmers and merchants had a faster means of transporting their produce and wares, by boxcar rather than wagon load. The railroad replaced the Connecticut River as a trade route, eliminating the disadvantages of seasonal transportation. The sharply increasing demand of growing cities for fresh milk, cream, and butter brought prosperity for those who had successfully adjusted from shearing sheep to milking cows. Already established communities like Lewiston and Pompanoosuc grew around railroad depots. The former boasted its own store, post office, and coal and lumber yards. The Pattersonville Chair Company took full advantage of a warehouse next to the Kendall Railroad Station built in Pompanoosuc in 1914.

Construction of the Wilder Dam, part of a network of water power dams, altered farming patterns along the Connecticut River and its tributaries. Many of Norwich's fertile flood plains were submerged, including those in Pompanoosuc.

Perhaps the building of Interstates 91 and 89 most dramatically impacted the course of Norwich history. Finished in 1968, the four-lane highways connected Norwich overnight to the entire East Coast and to the rest of North America. Travel time between Norwich and Boston or New York City was cut in half. Dilapidated or abandoned

NORWICH TOWN PLAN

houses quickly became summer and retirement homes (a trend already evident in Beaver Meadow in the 1940's), replacing working farms but rescuing some rural architecture.

There are still residents who remember seeing cattle being driven down Main Street to their barns from pastures further out. While Norwich did exist for many years as a quiet farming community, longtime residents see changes. The town is increasingly sought out by those who work elsewhere as the place where they choose to live. They want it for its good school and its proximity to Hanover, Dartmouth College, and the Dartmouth Hitchcock Medical Center. They come here for the kind of life that has disappeared elsewhere and which they perceive can be found here. The Dartmouth presence is strong and the College and its library have long drawn both summer people and permanent residents. Academics from other institutions have been coming here since the 1940's, and many of them settled in the Upper Valley after fleeing Europe during World War II. Others see Norwich as a place for retirement; frequently these are alumni of Dartmouth College. All of these trends are agents of change for Norwich.

Chapter 3

LAND USE PLAN

INTRODUCTION

Two centuries of "working the land" have brought about many changes in the Norwich landscape from the "natural area" that greeted the original settlers in the 1770's to the residential community of today. The topography may be the same (mostly hills) but forests were cleared and allowed to regrow, pastures were created and then disappeared, streams were dammed and undammed, then the rivers were dammed, farms were settled and abandoned, and villages were built. A "working landscape" is always changing.

The purpose of a land use plan is to attempt to identify those features of the natural and working landscape that should be preserved and to direct future development of the land so as to respect the desire of the community to preserve its rural character and quality of life while creating homes and employment opportunities for current residents and future generations. The plan responds to our mutual needs as a community while respecting the concerns of individual citizens.

This Land Use Plan includes sections on current land use in Norwich, future land use issues, and goals, objectives, policies, and recommended actions. Additional Objectives and Policies relating to land use issues are at the end of Chapter 4.

LAND USE HISTORY IN NORWICH

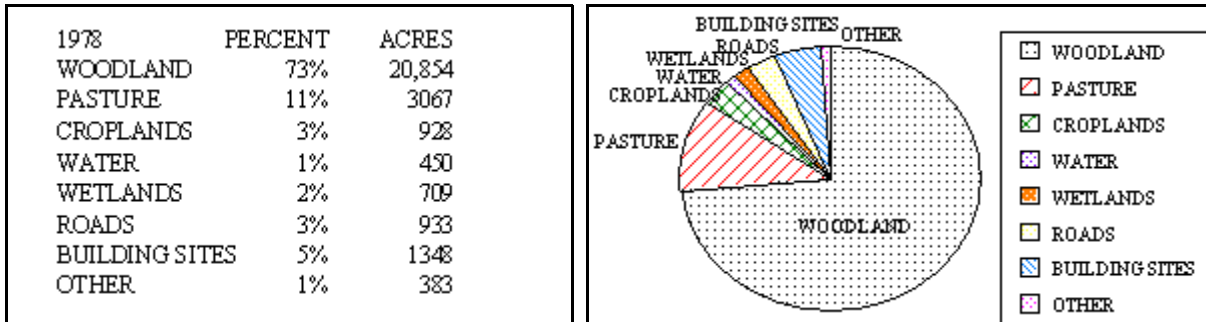
The Historical Sketch in Section 2.1 of this plan follows the transition of Norwich from an uninhabited wilderness area in the mid 1700's to the residential community of today. Most of the land in Norwich has been through many changes since the original settlers arrived. First cleared of trees, then grazed clean by sheep, then either allowed to revert to forest or converted to pasture or hay field for dairy farms, Norwich is now over 70% woodland and less than 15% pasture, hay fields, or croplands (see Table 3-1).

For the most part, major changes in Norwich land use have been in response to

NORWICH TOWN PLAN

economic conditions of a regional, national, or global nature.

Table 3-1. Norwich Land Cover/Land Use, 1978



Norwich Planning: Interpreted from Orthophotos

CURRENT LAND USE IN NORWICH

Residential Use

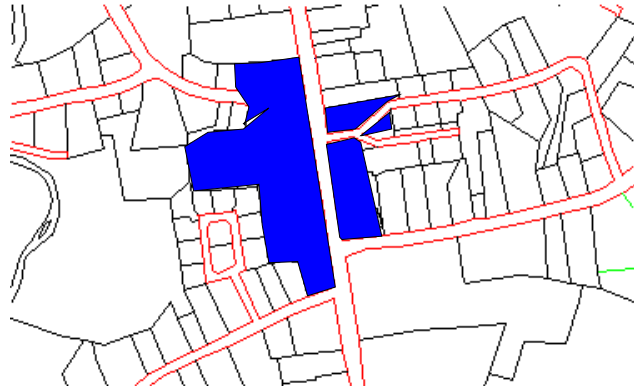
Over the years the pattern of residential development has changed from the early compact settlements separated by open farmland to a linear spread of houses along many of the major roads. Several large subdivisions with small lots were created in or near the Village prior to the enactment of state subdivision regulations in 1968. Between 1974 and 1980, construction occurred closer to the Village. After 1980, construction began spreading further out along Turnpike, Beaver Meadow, and New Boston Roads.

Much of this development has been in lots of just over 10 acres due to restrictive state septic regulations for parcels of less than 10 acres created after 1968. The effect of this pattern is to create lots too small for economically viable agriculture or forestry, but larger than needed for a private residential setting.

Active farms are disappearing and parcels that used to be pastures or hay fields are now house lots or woodland. This residential development has been driven by a strong economy in the Upper Valley, the excellent reputation of the school system, and the availability of building lots. (See Chapters 2.2 and 7 for a more detailed analysis of population and housing growth in Norwich.)

Commercial Use

Commercial development in Norwich has remained primarily in the Village Business zoning district, and along the east side of Route 5 South in the Commercial/Industrial zoning district. The limited commercial activity along River Road mostly consists of "grandfathered"



Village Business District

businesses that pre-date zoning. Although there is demand for more commercial space, it has been limited by the lack of a municipal septic system and the Zoning Regulations. The Village Business District is almost filled to capacity. There are a few remaining residential units on the second floors of commercial buildings. The Commercial/Industrial District on Route 5 South has direct access to a state highway and Interstate 91, but the area has been only partially developed due to poor conditions for sewage disposal.

Home businesses, known as "home occupations," exist throughout the town but are somewhat invisible because zoning regulations permit them only one sign of 4 square feet with no outside display of goods or equipment. Many of these businesses have no signs at all. Since 1980, there have been over 100 permits issued for home occupations and the 1993 Grand List recorded 80 reporting business equipment.



Commercial/Industrial District

Agricultural, Forest, and Open Space Land

Working farms have all but vanished from the Norwich landscape, with the last owner-operated dairy herd sold in 1987 during the Federal Buy-Out Program. The two

NORWICH TOWN PLAN

remaining dairy farms are leased. Other farms raise beef cattle, or fruits and vegetables sold at roadside stands and farmer's markets. Maple sugaring is still a viable activity for some landowners. A few farmers maintain fields by supplying hay to owners of recreational animals. There appears to be an increase in the pasturing of recreational horses on smaller lots. The remaining pastures are brush-hogged to keep growing fence rows, juniper, and pasture pines at bay. Many former pastures have been divided into house lots.

Traditional farming is not economically viable even with "current use" property tax reductions and other incentives. Some farmers have supplemented their income by selling gravel and sand, and others have sold development rights allowing them to get equity from the property and continue farming. Many farmers hold full-time jobs and rely on agriculture to supplement their income.

In addition to agricultural and forest land, there are still many large parcels of undeveloped land in Norwich. The 1993 Grand List shows that 67% of the total acreage is in parcels of over 50 acres (153 parcels) and that 46% is in parcels of over 100 acres (70 parcels).

Approximately 9% of land in Norwich is either permanently protected from development or controlled by the Town, State, Federal Government, or Norwich Fire District (Table 3-3)

Table 3-2. Parcels By Size
Norwich Grand List, 1993

Parcel Size	# of Parcels	Total Acres
up to one acre	347	189
>1 - 10 acres	644	2161
>10 - 20 acres	213	2738
>20 - 50 acres	126	4091
>50 - 100 acres	83	5713
>100 - 200 acres	52	7224
>200 - 300 acres	13	3154
>300 acres	5	2495

Table 3-3. Conserved and Government-Owned Land in Acres

Norwich Grand List, 1994

National Park Service (Appalachian Trail Corridor)		697
Town of Norwich Land		
	Conservation Land	157
	Cemeteries	19
	Recreation and School	34.7
	Other	41
	Total	251.7
State of Vermont		7
Fire District Land		860
Private Land with conservation easements held by Land Trusts		717
Total Conserved and Government-Owned		2,532.70
	Total Acres in Norwich	28,672
Percent Conserved or Government-Owned		8.9%

Additional land may be protected by private deed restrictions; however, since these restrictions may be removed in some cases by future owners or may not legally hold up over time, they do not have the same force as conservation easements held by qualified organizations.

In 1993, 83 parcels with a total of 8,138 acres were enrolled in the state's current use program, which is intended to reduce the property tax paid by owners of working farms and managed forest land. The landowner pays tax based on the value of the land for farming or agriculture and the state reimburses the town the difference between what the landowner pays and the full tax based on fair market value. This program is limited to properties over 25 acres and has been only partially funded by the State for the last few years. Because of this partial funding, landowners have been able to withdraw from the program without a penalty. Since 1991, 12 parcels with a total of 1,020 acres have

NORWICH TOWN PLAN

been withdrawn from the program.

Agricultural, forest, and open space land provide lower property tax receipts for the town than developed land; however, they require very little in town services as compared with developed land. Agricultural, forest, and open space land does not provide children for the school or put any cars on the town roads. This financial benefit to the town is in addition to the aesthetic benefits of living in a "rural" town.

FUTURE LAND USE

Residential Use

If Norwich is to protect the natural resources, preserve the agricultural land, and maintain the rural character and scenic beauty of the town, development will need to become less haphazard and more planned than it has been in the past. The economic forces that shaped the town prior to the 1960's have been replaced by new economic forces. The value of land is no longer in agriculture and logging, but in residential development. If left unregulated, residential development could occur in every "nook and cranny" that modern technology can find access and sewage disposal capability for, just as the town was clearcut without restrictions in the 19th century when logs and sheep were the economic engine.

Potentially, there is enough land for 10 times the number of houses now in Norwich under current zoning (two acres per residential structure). However, there are restraints on residential development other than zoning such as limited septic disposal capacity, steep slopes, limited access, state and federal wetlands rules, conservation easements, and private deed restrictions. Never the less, there is potential for four or five times the number of houses now in Norwich to be built in the future. Residential development could be accelerated by any or all of the following:

- a strong regional economy
- new technology for on-site sewage treatment
- high taxes on undeveloped land forcing or encouraging owners to sell
- continued excellence of local schools relative to others in the region.

If Norwich is to allow for more houses without destroying the rural character and scenic beauty of the town, development should be directed into areas suitable for that

development. Specific areas of the town can be designated for lower or higher densities of development. Within specific sites, residential structures can be grouped or "clustered" to preserve larger contiguous parcels for agriculture, forestry, or the protection of rural character and scenic beauty.

The re-creation of "outlying villages," either in the historic locations of the original settlements or in new locations, would create a focus for more dense residential development in specific locations. The creation of common cultural and recreational areas within these villages could create a sense of a local community.

The Town of Norwich has become large enough that some of the advantages of a small community are at risk. Existing and new outlying village centers could be enhanced to generate smaller communities. Small parcels of common land would facilitate this. Higher density in these areas can bring down the cost of housing, save open land and provide common recreational facilities, create more active communities, and save on town services. The outlying village centers would foster community spirit in these areas and avoid strip development without a focus.

Commercial Use

Due to transportation constraints and the desire to preserve the rural character of the town, the most appropriate location for commercial development serving regional markets is east of Route 5 South. Commercial development in the rural areas should be limited to businesses that will have a very low impact on town services or infrastructure and will not adversely affect the rural character and residential or agricultural use. Where possible, new commercial activity in the existing Village Business District should be limited to businesses serving the needs of the community rather than those primarily drawing customers from outside Norwich. This is due to limited building space, limited parking, and traffic congestion.

It may be desirable to create additional zoning districts allowing some level of commercial activity along River Road, Route 5 North, and on the west side of Route 5 South. Both of these areas are reached by state highways and easily accessible to Interstate 91. The level and type of commercial activity should be compatible with existing residential uses and sensitive to natural resources in the area such as the Connecticut River.

Although additional commercial development in Norwich could have a positive effect on the property tax burden by increasing the Grand List without adding students to

NORWICH TOWN PLAN

the school, secondary effects might offset this gain such as increased demands on town services. Some types of commercial development may require additional police or fire protection, and/or highway maintenance. Commercial activity requiring more employees than are already living in the town may encourage more residential development, which will offset the tax advantages of the original development.

Agriculture, Forest, and Open Space Land

Demand for residential housing, high property taxes, and the poor economic return from farming and forestry apply constant pressure for developing open land in Norwich. The housing demand is mostly created by regional economic factors (see Chapter 7, Housing Plan) but, as long as the town maintains its rural character, good schools, and town services, this demand will most likely continue. The poor economic return from farming and forestry is also beyond local control but, even though we cannot protect the farms themselves, we can protect the resource for the future when locally grown food may become economically viable again. Prime agricultural land and potential prime agricultural land that is undeveloped can be inventoried, and future development could be planned so as not to destroy the resource.

In most cases, when open space land is developed for residential use, the additional new taxes do not cover the additional costs to the town over time. (See Chapter 4 for a more detailed analysis of the costs vs. benefits of development.) Large developments in areas of town with limited access and facilities could be very costly for all taxpayers in the future.

Wireless Communication Facilities

Technological developments in the telecommunications and broadcast industries have resulted in demands for development of property to accommodate these land uses. Wireless communication facilities have become increasingly important to the security and economic needs of residents and businesses in the Town. This trend will continue, creating new opportunities for commerce, reducing demand for travel by conventional modes. Given the potential impacts these facilities may have on the public good, safety and welfare of Norwich citizens, it is in the Town's interest to plan for and regulate the orderly development of such facilities in a manner that will comply with the other goals and objectives of this plan particularly regarding scenic beauty and rural character.

LAND USE GOALS

1. Preserve natural resources, scenic beauty, and the rural and village character in Norwich while allowing for growth.
2. Limit the rate of residential and commercial development to not exceed the capacity of existing and planned municipal infrastructure, facilities, and services.

LAND USE OBJECTIVES AND POLICIES

1. Create incentives for clustering of residential housing and commercial developments for the purpose of preserving natural resources and open lands.
2. Develop guidelines and criteria to identify land that is physically capable of supporting development.
3. Develop strategies to encourage somewhat higher density development around designated outlying village centers balanced by lower density development elsewhere.
 - a. Promote the creation of decentralized recreation facilities in outlying village areas to allow greater access to greens and trails.
 - b. Acquisition by the Town of lands in appropriate locations within the outlying village districts to serve as local town greens, parks, recreation areas, etc.
 - c. Encourage the creation of small parks, trails, swimming holes, etc. in neighborhoods, and trails connecting the outlying villages and countryside.
 - d. Encourage the use of the old remaining schoolhouses as community centers in outlying areas.
4. Preserve and protect the character of the current village center by maintaining the boundaries of the Village Business District and limiting commercial development so as not to significantly exceed the current level. Where possible, new Village businesses should be primarily intended to serve the needs of the community rather than the region because of the limited space available and the need to restrict regional traffic in and out of the Village.
5. Encourage and strengthen agricultural and forest industries.
 - a. Encourage strategies to protect long-term viability of agricultural and forest

NORWICH TOWN PLAN

- lands including the maintenance of a low overall density of development.
 - b. Encourage the manufacture and marketing of value-added agricultural and forest products.
 - c. Encourage the use of locally grown food products.
 - d. Encourage sound forest and agricultural management practices.
6. Allow businesses that primarily provide services to local residents in outlying village centers.
7. Encourage commercial development of a type and design that is compatible with the character of the town.
8. Encourage commercial cluster developments to provide for a common area with seating for public use: e.g. picnic tables, flower beds, small park.
9. Determine the type of commercial development appropriate for each of three categories:
- a. Outlying neighborhood services
 - b. Main village businesses
 - c. Regional commercial development.
10. Protect and support the existence of cottage industry, home industry, and home occupations in Norwich.
11. Identify and purchase land for future town needs: municipal services, recreation, utilities, etc.
12. Investigate the creation of additional commercial or mixed use districts on Route 5 South, River Road, and Route 5 North that are compatible with existing residential uses and sensitive to natural resources in the area such as the Connecticut River.
13. Encourage appropriate business/services not already available in the community.
14. Encourage protection of open space by conservation easements.

15. Provide for and regulate the orderly development of wireless communication facilities in a manner that will comply with the other goals and objectives of this plan.

RECOMMENDED ACTIONS

Protection of Natural Resources

1. Review the current zoning setbacks and protection zones for natural resource areas including wetlands, shorelines, and aquifers, and, if needed, establish new ones.
2. Make inventories and maps of all protected natural resource areas readily available to all residents, landowners, or their agents.
3. Establish other protection areas such as steep slopes and ridgeline areas which may need additional evaluation on a site-specific basis prior to development. These areas should be clearly delineated on maps, and specific criteria and conditions for development should be established.

Preservation of Agriculture

1. Support working farms through:
 - a. non-restrictive zoning for agriculture;
 - b. allowing commercial uses that help support the agricultural uses and/or preservation of land for agriculture;
 - c. property tax relief at the town level.
2. Prime agricultural land, as it applies to Norwich, should be evaluated, defined, mapped, and protected from development.

Acquisition of Land for Public Use

1. Identify specific needs for land for public or municipal use and when it will be needed. Needs may include land for recreation facilities and playing fields, cemeteries,

NORWICH TOWN PLAN

access to other public lands or rivers, and other municipal facilities.

2. Set aside funds to buy or obtain an option to buy appropriate land as it becomes available. Conservation land can be acquired using the Norwich Conservation Commission's Capital Land Fund.

3. Facilitate the acquisition or use of existing parcels of public land close to the center of outlying villages for recreation and community events.

Regulation of Residential Development

1. Include in the Zoning Regulations provisions for the creation of new villages with smaller lot sizes, mixed residential and low impact commercial uses, and common areas for community use. Location should be based on existing roads, septic disposal potential, and participation of landowners.

2. Encourage via the Zoning Regulations the "clustering" of residential housing on larger lots with the goal of preserving larger contiguous parcels for farming, forestry, and the preservation of open space and natural resources. The overall density of "clustered" projects should be no more than the density would have been in an unclustered plan taking into account the actual development potential of the land based on zoning, access, topography, and septic capacity.

3. Consider increasing the minimum lot size for residences in the rural areas where there is limited capacity for development due to poor soils, steep slopes, and limited access.

Commercial/Industrial Development

1. Encourage development of the commercial/industrial district on Route 5 South in a manner that will benefit the town on a long term basis. The landowners and the Town should work together to obtain septic disposal capacity for the area and to develop a master plan.

2. Develop a proposal for additional mixed use (residential and commercial) districts on

the west side of Route 5 South and along River Road and Route 5 North. The commercial uses should be "low impact" and compatible with existing residential uses and sensitive to natural resources.

3. Create criteria and performance standards for commercial uses in the rural residential areas to allow low-impact uses that will not adversely affect the residential and agricultural uses.

Chapter 5

NATURAL AND HISTORIC RESOURCES

INTRODUCTION

Norwich's citizens prize the town's natural resources and have been concerned with their protection. This is shown by a townwide survey conducted by the Conservation Commission in 1988 and a Master Plan questionnaire distributed by the Planning Commission in September, 1989. The Capital Land Fund, now in its 20th year of operation, has been a major vehicle of the town's support of protection through public funds.

Clearly, Norwich's natural resources are valued for contributing to its citizens' well-being and the town's rural character. This chapter will explore the past and present state of Norwich's natural, scenic, and historical resources and suggest how they should be treated in the future. It is divided into three sections:

- *Natural Resources:* Land Resources (soils, agricultural land, forest lands, trails and greenways, wildlife habitats), Water Resources (rivers and brooks, wetlands, groundwater), Air Quality
- *Scenic Beauty and Rural Character*
- *Historic Resources.*

NATURAL RESOURCES

The early settlers who first moved into the Norwich Town Grant came with the intention of making use of the natural resources. They settled along the river plain and above the fall-lines of the brooks, where there was good soil, at first avoiding the ancient bed of glacial Lake Hitchcock where they found clay and wetland, and where the streams were clogged with flood debris.

As more immigrants arrived, they cleared and settled the land between the banks and deltas left over several thousand years by the Lake while the continental ice sheet was retreating. They quickly cut the forest back by slashing and burning and capitalized

NORWICH TOWN PLAN

on the glacial deposits of sand and gravel for construction and road strengthening, as is still done. They next settled the main brook valleys, where roads could be built, avoiding the higher ridges and peaks: Gile Mountain (1863 feet), Griggs Mountain (1680 feet), Bradley Hill (1200 feet), Meetinghouse Hill (1000 feet). Most of the steep hills and ridges are still forested with scenic vistas to and from them. Norwich's topography creates many opportunities for scenic views from homes and roadways that stretch along valleys and hills. These are major contributors to the rural character enjoyed by Norwich's residents.

Land Resources

Soils

The physical and chemical components of soil vary greatly in Norwich and influence the suitability of land for various land uses, such as agriculture and development. The Soil Conservation Service remapped the soils of Norwich in 1992. In 1994, these surveys were converted into digital format and are a layer of the Norwich Geographic Information System (GIS). In general, soils on ridgelines and hillsides in Norwich are thin (less than 3 feet to bedrock). These pose additional expense and difficulty in constructing adequate septic systems. Also, steep slopes are highly erodible and pose similar problems.

Sand and gravel deposits near the Connecticut River and elsewhere are highly porous and readily transmit septic effluent to the groundwater, though they are a valuable resource for construction. Not only are they a non-renewable resource, they become unavailable if built upon. The use of local sand and gravel significantly reduces the cost of road maintenance within the town and helps the local economy. With proper erosion control and reclamation techniques, their extraction can have minimal impact on the environment and the land can be returned to other productive uses.

Agricultural Land

Prime agricultural soils

On a nationwide basis, certain soils are designated as prime for agriculture

because of their chemical properties and drainage characteristics. Norwich has some of these on the flood plain of the Connecticut River or (as along the Norwich Main Street) on the terraces of the ancient Lake Hitchcock. Many have been developed for other uses. Some remaining open areas of prime agricultural soils, though not sufficient for large-scale agricultural practices, can be used for vegetable and specialty crops for local and northeastern markets. They warrant protection to ensure future local food production.

Farmlands

Norwich has lost many of its farms in the past three decades. Various factors impacting the farm economy regionally, such as competition from western agriculture as well as high property taxes locally have contributed to the loss of all but a few farms in Norwich. If the trend is to be stopped or reversed, active steps to support local agriculture and a change in tax policy should be considered. The farms that remain provide local jobs and keep land open. Local production of fruit, vegetables, meat, milk, and syrup reduces the use of fuel for shipping food and contributes to the town's economy. Encouraging their viability also helps maintain Norwich's rural character.

Another recent trend that helps maintain agricultural land uses is the increase of part-time and back-yard farming with the raising of chickens, beef, or sheep, mostly for personal consumption.

Forest Land

Approximately 74% of Norwich's land is covered by forests. These comprise a permanently renewable resource, if managed properly. They also contribute to wildlife habitat, clean air, and the local economy, as well as the town's rural character. When forests are subdivided into large lots, their productivity is diminished. Clustering housing development is a way to minimize this effect. Forest management should be accomplished in a manner that does not create erosion or adversely impact scenic areas and wildlife.

NORWICH TOWN PLAN

Wildlife Habitats and “Natural Areas”

Wild animals require substantial acreage, if not in solid blocks, at least in sections connected by undisturbed corridors for seasonal movement. Their preservation requires more than protection of the yards where the deer survive the winter, or of the nesting sites for birds.

Most wildlife habitats have not been identified or located on maps in Norwich, though townspeople regularly enjoy living where there is such a variety of wildlife. Special and fragile "natural areas" contribute precious elements to the quality of life in Norwich, promoting species diversity, aesthetic enjoyment, unorganized recreation, and education. Examples include orchid swamps, peat bogs, vernal pools, cliffs with their talus slopes, fall-line gorges, estuaries, and deer yards. An important one is the Connecticut River. Several areas, including the top of Gile Mountain, the Schmidt Preserve, the Norwich Nature Center (the former Peisch Land), and the Loveland Strip along the Connecticut River, have been brought into public ownership.

All such "natural areas" should be identified and graded in order of their uniqueness or significance. Then some can be protected through purchase, through encouraging landowners to seek permanent conservation protection, and through careful review of proposals to change environments by development.

Trails and Greenways

Norwich' s trails and greenways provide a valued resource for citizens and visitors. A favorite bicycle and jogging route travels along the Connecticut River on the River Road and then extends north into Thetford. Another walking and jogging route for residents and non-residents alike makes a loop on Route 5 south and Hopson road, taking advantage of the open space of Betty Booth' s property and the Warner Meadow, both protected with conservation easements donated to the Upper Valley Land Trust.

One of Norwich' s favorite hiking trails for school children, citizens, and visitors is the nationally protected Appalachian Trail. It travels through woods with understories of ferns and wildflowers and comes out upon views of open hillsides on its path from Elm Street over Bragg Hill to the Jericho area and on into Hartford. A wider corridor

of protected open space along the narrow trail, both wooded and in open fields, is being created through generous voluntary donations of conservation easements by landowners, with help from the Appalachian Trail Conference and the Upper Valley Land Trust, creating a major resource for both wildlife and human beings.

The Norwich Nature Center adjacent to the Marion Cross School is readily accessible to school children and the general public close to the center of town. With identified stops it helps to educate classes of school children and others, as well as to provide a peaceful respite. Trails owned by the town, leading to Gile Mountain (the highest peak in town) and to the Schmidt Preserve with its showy ladyslippers, provide access to other favorite spots in the fall and spring, respectively. Another resource, the Reservoir Trail, follows the Charles Brown Brook down the length of the Fire District watershed land.

A trail, created by the mutual efforts of the Montshire Museum and the conservation commissions of Norwich and Hartford, leads from the museum to Wilder Village. It and other Montshire trails--one for finding wildflowers and one along the Connecticut River--are valued assets.

Class 4 roads and numerous trails are used by hikers, bikers, horseback riders, cross-country skiers, and snowmobilers. Many are not identified on maps. Some roads and trails could be interconnected to provide a continuous network, both in Norwich and adjoining towns. Ways may be found to provide safe hiking and biking passage to the Huntley Meadow from the center of town.

Opportunities exist to interconnect existing trails with each other and these need to be explored. Other corridors of open space need to be identified and landowners encouraged to protect them, perhaps using the Appalachian Trail Corridor as a model, and creating links to it.

NORWICH TOWN PLAN

Water Resources

Rivers, Brooks and Ponds--Surface Waters

Norwich enjoys an extensive shoreline along the Connecticut River and its tributary, the Ompompanoosuc River. The Connecticut River is probably Norwich's most valued natural, recreational, and scenic resource, as well as a national treasure. Water quality has markedly improved as communities to the north have installed sewage treatment plants.

Today the rivers are used extensively by residents and non-residents for boating, swimming, and fishing. There are only two public access points, a small one north of the Ledyard Bridge on River Road owned by the Town and one belonging to the Vermont Department of Fish and Wildlife on the Ompompanoosuc. A primitive canoe campsite, accessible from the river, provides for low-impact recreation. A spot for public swimming on the Ompompanoosuc or Connecticut River does not exist in Norwich, though the potential is there. Currently there are no incentives to landowners to create greenways along the rivers.

Of the brooks confined to Norwich, the biggest, Blood Brook, arises near Gile Mountain and the northernmost corner of the town, and empties into the Connecticut near the southernmost corner, running almost the entire diagonal length of the town. Its two largest tributaries are the Charles Brown Brook from the northwest and the New Boston Brook from the north-northeast. A smaller branch, Bragg Brook, joins near the south end of town. Dothan, Podunk, Tigertown, and Mitchell Brooks flow southward toward the White River. Avery Brook flows into the Ompompanoosuc River from northeast Norwich through Thetford.

All of these brooks have beautiful clear tumbling water and are recreational resources, to walk alongside or fish in. They support wildlife. They also contribute to the recharge of ground water supplies, but they are not regularly tested. Ideally, the quality of water in the brooks and streams should remain high to support these uses. Erosion should be controlled to insure water quality and to maintain fisheries. Foliage needed to protect natural habitats along the streams should also be maintained.

Norwich has only one large kettlehole pond within its boundary, called Star Lake, and only one corner of man-made Norford Lake comes into the township. It has several sites big enough to support and be controlled by beavers, two of which are ponds at the

headwaters of Avery Brook and Mitchell Brook, which continue into Sharon and Thetford, respectively.

Wetlands

Marshes along rivers and streams, swamps, and bogs in woods--areas that are more or less regularly wet or flooded--are wetlands. In earlier times, many of them were considered a nuisance to be eliminated, but they are now understood to be essential not only for the survival of many species of plants and animals, but also for maintaining the health, safety, and welfare of the general public. These fragile resources protect drinking water supplies by filtering out pollutants and by helping to recharge aquifers. Wetlands also minimize flood damage by temporarily absorbing and storing flood waters.

The importance of wetlands has been recognized both in national and Vermont legislation in recent years. Thus, those that remain and are of a size and/or quality to fulfill the functions mentioned above are protected. These wetlands--Class I of national significance, and Class II of statewide significance--comprise less than 5% of the state's surface area. The Vermont Water Resources Department has estimated that nearly half the state's wetlands have been lost.

There are approximately 80 wetlands in Norwich on the National Wetlands Inventory. They are protected by the 1990 Vermont Wetland Rules as Class II. Some of the major ones are located in the brook valleys and along the shore of the Connecticut River. The inventory of Norwich's wetlands is being updated by the Conservation Commission. In the summer of 1993 two consultants mapped new information from 1992 infrared aerial photos taken by the state and 1992 data on wetland-related soils from the Soil Conservation Service. Some of the potential wetlands were field-checked. These new inventories can be used to help prioritize wetlands, in terms of their significance for public education, to facilitate planning decisions, and to encourage their protection. Where appropriate, a critical Class II wetland may warrant redesignation as Class I (of national significance) and afforded greater protection. Some currently on the National Wetlands Inventory may not be significant enough and should be reassigned to Class III or not included. Where significant wetlands (Classes I and II) exist, their protection needs to be encouraged and state regulations complied with.

NORWICH TOWN PLAN

Groundwater

Groundwater is the least understood of all our natural resources, yet essential to the preservation of life and to economic stability. The entire population of Norwich relies on groundwater for domestic uses. It is tapped from underground springs or fractures in rock, or mined from underground storage areas called aquifers. Aquifers are subsurface deposits of coarse sand and gravel that, because of the depth of the material and large pore sizes between sand grains and cobbles, hold vast quantities of potable water.

In the 1920' s, the Norwich Water Company was formed to build a reservoir on the Charles Brown Brook from which to pipe water to houses and hydrants in the Village. When the company failed in 1970, it was bought out by the Fire District. Within 10 years the growing Village needed more water, and estimates of the adequacy or feasibility of enlarging the reservoir were not encouraging. The cost of a treatment plant did not favor going to the Connecticut River for town water. Deep wells were driven in a dozen likely spots without finding any source sufficient to supply the Village. Finally, an aquifer was found that was more than adequate, though at a distance of 2 miles up the river. It lies in an esker, a thick ribbon of sand and gravel left by a river that ran under the great ice sheet while it was retreating northward. The modern river cut through it, probably when ancient Lake Hitchcock was emptying, so that only its northern part is in Vermont, its southern part extends down through Hanover from the level of the Cold Region's Research and Engineering Laboratory (CRREL).

The Fire District bought 10 acres of land at the south end of the Vermont part of the esker to assure access to it. Water is pumped from the aquifer, delivered to the District 2 miles downstream, pumped to the top of a hill west of the Village, and stored there in an underground tank, whence it flows back to the District by gravity.

The town has established an aquifer protection district as part of the zoning regulations that includes the Fire District' s 10 acres and some of the gravel mine just north of it. This district should be re-evaluated in light of hydrological studies conducted in 1990. The water quality of the well is impacted by the water quality of the Connecticut River and therefore the actual area that needs to be monitored could be extensive.

While the coarse texture in an aquifer retains large quantities of drinking water, it also allows rapid and untreatable diffusion of pollutants. Septic tank effluent, leaking underground fuel storage tanks, landfill leachate, or improperly stored hazardous wastes are potential sources of groundwater pollution. If toxins have not been filtered out by

their passage through vegetation and soil (the reason for setbacks) they are virtually impossible to clean out of the aquifer.

The river, the railroad, Route 5, and Interstate 91 are close by the esker. A major toxic spill on any of these might contaminate the Village's drinking water supply. The very possibility that such a disaster might occur calls for plans to be in readiness to provide the Town with another supply or to add a filter treatment plant to the existing system.

In sum, there is a critical need to protect the aquifer that supplies the Fire District and other sources of drinking water, and to locate major sources for future use. Only with planning and action can Norwich assure its citizens that their water and health will be safeguarded from harmful micro-organisms and toxic chemicals. Protecting groundwater deserves the highest priority in formulating plans for the future of Norwich.

Air Quality

Air quality problems in Vermont are mostly created elsewhere and must be solved at a state, national, or international level. However, there are local sources of air pollution including woodstoves, backyard burning of trash, and truck and automobile emissions, that should be monitored. Dust at construction and excavation sites could be controlled. Clean air is a primary value that can no longer be taken for granted even in less industrialized states such as Vermont.

SCENIC BEAUTY AND RURAL CHARACTER

Norwich is appreciated by most of its residents as a quiet community for rural living. Commercial development is limited to retail and service establishments on Main Street and Route 5. The many small businesses and offices that operate in homes remain inconspicuous. The Green in the center of the main Village and the historic homes along or near Main Street provide continuity from earlier settlement. Abandoned cellar-holes and granite posts mark former homesteads of town ancestors.

Open country and twisting roads that follow lively brooks between forested slopes lead to small outer neighborhoods with names like Beaver Meadow, Union Village,

NORWICH TOWN PLAN

Pompanoosuc, and Podunk. The Connecticut River with its tributary, the Ompompanoosuc, open fields, and remaining patches of pasture add to the variety and beauty. Yet the world changes, and Norwich' s rural character is fragile.

Roads, fanning like fingers of a hand from the main Village, are being changed by residential strip-like development where one has to look between houses to catch the view. There is still nothing to prevent building a house up on a ridgeline where there used to be trees or green pasture against the horizon.

Norwich is no longer primarily an agricultural town, but retains a few fair-sized farms and much rural character. This chapter identifies the main elements of that character, e.g., agricultural and forest lands, brooks and wetlands, wildlife and vulnerable habitats, scenic roads and vistas, historic buildings and sites, and the night sky. Others, such as traditional village settlement patterns and clustered housing in relation to open space, are discussed in the Land Use chapter, but are equally important in a discussion of natural resources. The identification of all these is the first order of business, if the goal is to preserve them. The objectives in this chapter suggest protective measures. Two other elements are highlighted below.

Open Space

Compact village clusters surrounded by open space--all land that is not built on--helps define the character of Norwich as a New England town with roots deep in the past. Open meadows, fields, and woods contribute to the enjoyment of residents and visitors alike as they walk or ride along; they are an essential part of the scenic beauty of the town. Farmlands preserve open stretches viewed from Interstate 91 and Route 5, as well as from closer in town and along Union Village Road. Other open lands are vital parts of favorite areas, such as Bradley Hill Road and Bragg Hill Road.

Norwich is fortunate that it still retains much of its open space, though parcels are being broken up and developed. Remaining areas should be identified and prioritized for possible help from the town in protecting them. Landowners can be encouraged to do this through conservation easements, development plans that group or cluster houses together leaving the remaining land as preserved open space, and estate planning that considers the future use of the land.

Scenic Roads and Areas

Long vistas across farms toward forests and hills and across the Connecticut River toward the mountains offer scenic beauty. A scenic area can be one with views of farmsteads surrounded by pastureland, of compact villages nestled among hills, and of arching trees over dirt roads. It can also be views of mountain ridgelines seen across a level or gently rolling field. These areas combine elements of contrast, reflect order and harmony, and contain intact patterns and focal points. Some are particularly sensitive to development pressures.

The Natural Resources Questionnaire circulated to Norwich residents in 1988 brought out nominations for scenic areas from nearly all participants. They mentioned roads through most of the fall-line gorges that followed tumbling brooks through unbroken forest, for instance, the Crooked Half-Mile, lower Bragg Hill Road, and Tigertown Road. Considered the best views were those from the top of Gile Mountain, upper Bragg Hill, Bradley Hill, and along the Connecticut River. Special areas included the Village Green in fall foliage and the New Boston beaver ponds, the Norwich Grand Canyon, and the Van Arman and Smith farms.

A wider study needs to be undertaken. Scenic areas and roads should be identified both for their value to the community and their sensitivity to development. Then Norwich can focus efforts to encourage private and public means for their protection.

(See Chapter 9 - Transportation Plan, for more discussion of scenic roads.)

Lighting

The skies above and the views from and toward Norwich are appreciated at night as well as day. Our ability to enjoy the night sky can be hampered by excessive and unshielded lighting. Public safety and welfare require adequate illumination in proper places, but excessive lighting may produce unsafe or unpleasant conditions where unshielded light glares into the eyes of drivers and into houses. Unnecessary lighting also wastes natural resources. These problems should be addressed in the public interest.

HISTORIC RESOURCES

Norwich's historic resources range from undisturbed native American sites to Civil War letters; from historic buildings to portraits of their owners; from 18th-century account books to 20th-century photographs. The diversity of historical documents within the town and in nearby repositories is staggering, but myth often replaces fact. Our historical resources flush out the elements of truth obscured in fanciful folklore. For instance, Blood Brook is often described as the site of an Indian massacre. The closest Indian conflict to Norwich was the raid on Royalton on October 16, 1780. Blood Brook more likely received its name because of the tanneries located on its banks.

¹ Our historical documents point us toward which is the more probable explanation.

Archaeological Resources

The confluences of rivers and brooks on rich alluvial plains harbor vestiges of civilizations that pre-date colonial settlement by thousands of years. The Ompompanoosuc River (the Indian name meaning 'place of very white stones') is associated with native American heritage.² From Gile and Griggs Mountains to Brown and Blood Brooks, and the Connecticut River, all have the potential for revealing evidence of native American activity. In fact, in 1994, a Marion Cross Elementary School student located a projectile point during a casual walk on the fire district land. It is important to recognize and respect the importance of these ancient home, hunting and burial sites and not to disturb or pilfer them for curiosity's sake. Casual 'digs' disturb pristine time lines that exist in unusual continuity. The Vermont Division for Historic Preservation should be contacted if a site is inadvertently unearthed. Not every site is worthy of preservation but an expert should be called to determine value.

Archaeology also tells us a lot about our colonial forebears. As far as we can determine, none of the original houses built by Jacob Fenton, the Hutchinsons, or the Messengers survive (see 2.1 p. 1). Perhaps Jacob Burton's house site and mill, long since vanished from the streetscape could be determined.³ Archaeological research

¹The color of tannic acid in the bark used in the tanning process is reddish in hue. See Goddard. **History of Norwich, Vermont.** Hanover, NH: Dartmouth Press, 1905, page 140.

²See Goddard, page 138

³Historian, Virginia Close has worked extensively with town and manuscript records to identify the location of this important historic site.

coupled with primary manuscripts could locate the archaeological remains of the first mill site. Meanwhile, excavations around the Marion Cross School during construction of the 1993 addition unearthed cadet buttons, eating utensils, clay pipes and ceramic plates used at Norwich University. A gnarled piece of iron found at the site illustrates the heat of the fire that destroyed the south barracks in 1866, leading to the University's move to Northfield. Granite posts along the road and ripples in the land tell of the rich manufacturing history of potash works, blacksmith shops, tanneries and orchards. Near many of Norwich's 18th and 19th-century homes are 'trash pits' where domestic refuse was dumped. With time, these textured soils become a buried record of lifestyle. Ceramic bits found in these historic dumpsters document dishes imported from England, France, and China. In fact, potsherds (broken archaeological samples) recently found near the Norwich Inn suggests that 19th-century dinners were served on fancy Chinese export porcelain plates.

Although largely gone from the landscape, Norwich's industrial history can be understood through archaeology. For instance, the Pattersonville Chair Factory was located on the Ompompanoosuc. Originally composed of over nine buildings including sawmills, warehouses, and company store, now only two houses remain. Together with photographic documentation and business records, the archaeology of the site is rich. Lewiston village, once a thriving community with stores, homes, a sawmill, ice house and railroad depot, were razed when the interstate ramps were built in the 1960s. Three existing buildings, photographs, maps and concentrations of archaeological resources document the history of this continually evolving site.

Material Culture Resources

"Material culture" is an academic phrase for what some call 'above ground archaeology'. The study of material culture study focuses on three dimensional objects like buildings, bridges, roads, domestic furnishings, tools, and machines to understand better the history of culture through lifestyle. It complements the traditional study of history by linking the written word to the three dimensional world. Norwich's history, in large part, can be understood by driving along Main Street where impressive neo-classical houses speak of an affluent, highly style-conscious community. Large, hipped roofed houses with

NORWICH TOWN PLAN

connected barns and out-buildings along outlying roads tell of affluent farmers and a complicated network of trade and commerce. Story-and one-half (or 'Cape Cod-style) houses nestled on hillsides commanding breath-taking views of the Connecticut valley show careful planning.

Houses and outbuildings were built with convenience and practicality in mind. Until recently, the latter (barns, wood sheds, stables, sugar and milk houses, chicken coops, hog houses, etc.) were integral parts of domestic space in Norwich. Some of these structures are renovated and adapted to current needs. Others have fallen into disrepair, eventually to become part of the archaeological rather than visual landscape. In addition to recording a way of life and use of resources, outbuildings are part of a romantic landscape used to promote Vermont as peaceful and bucolic.⁴

Our architectural heritage is one historic resource that is unmatched in the Upper Valley. Norwich Village (Main Street and adjacent side streets) was placed on the National Register of Historic Places in 1991 because it retains its early scale and architecture. The classification is honorific and does not place restrictions or covenants on the buildings.⁵

Probate inventories are a valuable documentary resource that list household and business assets and their values. Items such as "1 waistcoat" (a man's vest); "1 bed furniture" (fabric hung on a posted bed); 1 four foot cherry table (a drop-leaf table, four feet long) describe basic household objects that define the local economy. Although inventories do not tell where items came from or who produced them, some craftsmen are documented by inscribed products. Perhaps the most famous Norwich craftsman is George Stedman. Born in 1797, Stedman lived in Norwich for only a short time. While here, he constructed high-style furniture made in the French taste. One bureau bearing his signature is owned by the Winterthur Museum in Delaware. Other furniture makers and housewrights included Azro Turner, Hezekiah Kelly, Asahel Lewis, and Calvin Seaver. Unlike Stedman who left furniture with a scant paper trail, these craftsmen are known only through receipts, account books, and deeds where professions are listed. New discoveries necessitate the preservation of two and three dimensional documents

⁴Recognizing the importance of out buildings to farmers and to marketing the state to tourists, the State of Vermont offers financial assistance for the preservation of barns in its Barn Grant Program. Contact the Division for Historic Preservation, Agency of Community and Development Affairs for more information.

⁵National Register status does not prohibit any private use of a building. Restrictions only apply where Federal funds are involved; for instance, for a bridge or road. The Vermont Division for Historic Preservation reviews all such Federally funded cases in the Act 250 and Section 106 processes.

(including buildings) to secure an understanding of our economic and cultural past for the future.

Primary Resources

The artifacts of Norwich history are diverse and plentiful. The Norwich Historical Society seeks to "preserve and interpret items...from Norwich's past" including textiles, ceramics, paintings and prints, maps, letters, and photographs. Thus, there is a repository for the safe-keeping for items found in homes, businesses, antique shops and flea markets that directly relate to town history. Records at the Town Clerk's Office and at the County seats in Woodstock and Middlesex are also invaluable resources for telling the complex story of Norwich's settlement and development. The Vermont Historical Society, Shelburne Museum, Bennington Museum, Special Collections at Dartmouth College, and Norwich University archives are additional repositories for the safe-keeping of our historical resources. Paul Brigham's (Lieutenant Governor) and Israel Newton's (early Norwich physician) papers are preserved at VHS. The Dutton Family high chest of drawers is exhibited at Shelburne and the Johnson Family civil war uniform are part of the Bennington Museum's military collection. The account books of a 19th-century decorative painter in Norwich, recently discovered at Dartmouth College, document stenciling and grain painting in Norwich houses, the painting of Norwich schools (including one yellow, red, and brown!), painting rooms and fences at Norwich University, and palings for graveside markers. Family archives are another important resource. Many Norwich son's and daughters care for heirlooms in attics, cellars, closets and trunks. While the 18th and 19th-centuries intrigue us, Norwich's 20th century history is just as significant. It is perhaps the century that has witnessed the most change in our town's daily routines.

Thus, Norwich's historical resources are recognized both at the local and state levels. Resources buried in the earth, built on the landscape, and preserved in archives are used on a daily basis. They are integral with and help to define our sense of community through time.

NORWICH TOWN PLAN

GOAL, OBJECTIVES, AND POLICIES

Goal

Preserve and protect Norwich's rural character, scenic areas, and natural and historic resources, for the health, safety, and enjoyment of present and future generations.

Objectives and Policies

General

1. Create and maintain inventories of significant natural, scenic, and historic resources.
2. Limit the adverse effect of development and human activity on significant natural, scenic, and historic resources.

Land Resources

1. Ensure the responsible use of gravel and sand resources so as to provide long-term benefit to the town.
2. Encourage the preservation of viable units of prime agricultural soils and productive farmland.
3. Encourage the management of forest lands to enhance their health and long-term productivity.
4. Protect habitats of rare and endangered species.
5. Encourage protection of significant wildlife habitats.
6. Create public trails to access natural and scenic resource areas where feasible and appropriate.

Water Resources

1. Maintain and improve the water quality in brooks and rivers.
2. Encourage protection of wetlands in Norwich, so there is no net loss of significant wetlands.
3. Protect aquifers and other ground water sources of Norwich' s present and future drinking water supply.

Scenic Beauty and Rural Character

1. Encourage the protection of the scenic beauty and rural character of Norwich' s special areas, rivers, and roads.
2. Encourage the protection of existing open space as a vital element in the rural character of Norwich.
3. Preserve the ridgelines in Norwich free from developmental intrusions, as an integral part of Norwich' s beauty seen from homes and roadways.
4. Identify existing trails and class 4 roads, and interconnect and maintain them for public use.
5. Regulate lighting, so that it may be reasonable for public safety, but ensure access to the day and night sky by minimizing intrusive light.

Historic Preservation

1. Establish criteria for identifying significant historical structures or sites in Norwich.
2. Review development plans prior to construction or demolition to prevent or minimize any adverse effects on significant historical sites or structures. Document details of structures slated for remodeling or demolition with photographs and reports.
3. Support work conducted by the Norwich Historical Society.

NORWICH TOWN PLAN

4. Allow for the restoration or reconstruction of historic structures that may otherwise not conform to zoning standards such as setbacks and height limits.

RECOMMENDED ACTIONS

General

1. Create GIS layers (maps combined with data) of significant natural and scenic resources, that include all relevant data. This information should be easily available to all landowners and their representatives.
2. Revise zoning and subdivision regulations to protect significant natural resource and scenic resources from development.

Soils

1. Revise zoning and subdivision regulations to:
 - a. control development on shallow and steep soils to reduce erosion and pollution potential, and
 - b. require the use of appropriate techniques to minimize environmental impact of sand and gravel extraction and provide for reclamation of the land.
2. Identify and encourage the protection of sand and gravel deposits for future uses.

Agricultural Lands

1. Continue identification and evaluation of active and potential agricultural lands by methods such as a "Land Evaluation and Site Assessment for Farmland"(LESA) program.
2. Encourage the protection of prime agricultural lands and viable farm units by participation by landowners in current use programs and other methods to reduce property taxes.
3. Revise zoning and subdivision regulations to allow the preservation of agricultural land by permitting homes to be clustered on the non-agricultural portion of a large

parcel.

4. Provide a regulatory climate that encourages and strengthens agricultural industries.

Forest Lands

1. Manage town forests and other forested public land according to standards that maintain them as a long-term resource.
2. Encourage landowner participation in the current use program for forestry.
3. Require forestry practices that minimize erosion and damage to watercourses.
4. Establish permanent conservation of the Fire District' s watershed lands for a possible future water supply, for recreation, wildlife habitat, and forestry.

Wildlife and Plant Habitats

1. Identify, map, and document Norwich's significant wildlife and plant habitats.
2. Find means to protect or encourage protection of habitats of rare and endangered species through the cooperation of landowners and/or revisions to the zoning regulations.
3. Revise zoning and subdivision regulations to require review of development plans before construction to assess their effects on significant wildlife habitats in order to encourage their protection.

Trails and Greenways

1. Identify and map existing trails and greenways.
2. Identify potential trail corridors to link existing trail and greenways with each other and with trail systems in neighboring towns.
3. Schedule regular maintenance of town trails.

NORWICH TOWN PLAN

4. Explore means to enhance public access to the rivers and other natural areas.

Water Resources: Rivers and Brooks

1. Review development plans to assure adequate setbacks of buildings and septic systems to prevent erosion and pollution and minimize alteration of stream courses.
2. Prohibit all discharges into rivers and brooks caused by failed septic systems, construction and road run-off, agricultural run-off, and any other source of pollution that will adversely affect the water quality.
3. Continue to join with neighboring Upper Valley communities in a regional effort to manage riverfront lands and control river pollution and to cooperate with state, bi-state, federal, and other organizations to protect the Connecticut River.
4. Continue restrictions on floodway and floodplain development.

Wetlands

1. Complete identification and mapping of Norwich' s wetlands.
2. If appropriate, register wetlands considered of national importance with the state as Class I for extra protection.
3. Revise zoning and subdivision regulations to prevent the loss of significant wetlands through development.
4. Encourage protection of wetlands through education as to their functions and value.

Aquifers and Groundwater

1. Identify and map all public water supplies and known aquifers in Norwich.
2. Identify and protect existing and potential drinking water resources. Re-evaluate the boundaries of the existing Aquifer Protection District.

3. Test groundwater in the Village to determine possible pollution from septic systems.

Air Quality

1. Encourage citizens to use efficient non-polluting wood burning practices.

Open Space

1. Identify and evaluate significant open space areas in Norwich that may warrant special protection.
2. Develop and implement a plan to protect and encourage protection of open space of high priority utilizing landowner cooperation.
3. Encourage landowners to keep their fields open.
4. Revise zoning and subdivision regulations to encourage cluster/open space development, so as to maintain the amount of open space in town.

Scenic Areas and Roads

1. Identify and prioritize scenic areas and roads in town.
2. Develop a plan to protect and encourage protection of scenic areas and roads of highest priority.
3. Regulate ridgeline development to minimize its visual impact.

Lighting and Noise

1. Revise zoning and subdivision regulations to protect the environment from unnecessary, offensive, and wasteful lighting, while providing such lighting as is reasonably necessary for public safety, and to ensure reasonable access to natural light and darkness.
2. Revise zoning and subdivision regulations to require new development projects to show that lighting and construction will not impede access to natural light and darkness of neighboring units.

NORWICH TOWN PLAN

3. Protect Norwich from excessive noise such as overflights, transmission noise, trucks that may remove noise suppression devices for greater power, or noise from other sources.

Historic Preservation

1. Identify further structures outside the Historic District or State Survey for Historical Importance.

2. Extend National Historic Register listings to other Norwich villages like Beaver Meadow and Union Village.

3. Identify, designate, map, and document Norwich's significant historic sites or structures that need to be protected.

4. Revise zoning and subdivision regulations to include the review of development plans prior to construction or demolition to prevent or minimize any adverse effects on significant historic sites or structures.

5. Revise zoning and subdivision regulations to allow for the restoration or reconstruction of historic structures that may otherwise be non-conforming.

Chapter 6

EDUCATIONAL FACILITIES

INTRODUCTION

Education is an important aspect of the Norwich community. The town's reputation for having an excellent school system has made it a popular choice for families, both those new to the Upper Valley and those wishing to relocate as their children reach school age. This trend has accelerated in the 1980's giving Norwich a larger percentage of families with children than most communities in Vermont, and has been a major factor in the town's recent population growth.

BACKGROUND

The Norwich School system is made up of two school districts. The Norwich School District is responsible for educating children from Kindergarten through Grade 6 (K-6) at the Marion Cross School in Norwich. The Dresden School District, which combines the towns of Norwich and Hanover, N.H., takes Norwich children from Grades 7 through 12 in the Richmond Middle School and the Hanover High School, both in Hanover. The Dresden School District was formed in 1965, and was the first interstate school district in the country. Prior to that time, Norwich educated students through eighth grade and high school students went to other towns, primarily Hanover.

SCHOOL POPULATION TRENDS

The Marion Cross School has seen major facility expansions in the 1950's, and most recently in 1989. This recent addition was in response to dramatic increases in the school age population in the latter half of the 1980's. From 1980 to 1984 the K-6 enrollment was stable and averaged 259 students. From 1984 to 1989 the numbers grew to 355, a 37% increase. Those trends have continued, and the 1993 enrollment was 443 students.

Current projections (1994) indicate that, due to abnormally low internal birth rates in 1992 and 1993 coupled with the graduation of large classes from Grade 6 in 1996 and 1997, the K-6 population will stabilize or even drop slightly after peaking in 1995.

NORWICH TOWN PLAN

EDUCATIONAL FACILITIES

The 1989 Marion Cross School expansion increased classroom capacity to 420 and core facilities to 540 students. In 1993-94, reassigning of space within the building accommodated 443 students. In the 1995-96 school year it was necessary to use space in the newly renovated Tracy Hall in order to accommodate 479 students. Enrollment seems to have reached a temporary peak, but there is nothing to indicate that the school population will level off permanently.

ISSUES

The following issues are likely to be faced by the educational system in the foreseeable future:

1. Although the current Marion Cross School facility may be adequate for the next five years (with the two extra classrooms), it appears likely that additional classroom space will be necessary by the end of the decade.
2. The increases in the elementary school enrollment will affect the middle and high school populations as well as create the potential for additional facility needs in the Dresden School System in the near future.
3. Norwich enrollment in Dresden has been rapidly increasing in recent years and will probably continue to increase in the near future. Norwich's share of the Dresden budget is dependent on the percentage of Norwich students in Dresden. Norwich's share of the Dresden school budget is an increasing tax burden for Norwich residents.
4. State and federal requirements concerning facilities and special needs are likely to continue to increase.

GOAL, OBJECTIVES, AND POLICIES

Goal

Provide cost effective educational facilities suitable for supporting quality education for Norwich students.

Objectives and Policies

1. Before constructing new educational facilities, explore all options including using existing town buildings or sending Grade 6 to the Richmond School.
2. Monitor closely population changes and thoroughly investigate the available options on an ongoing basis to allow the community time to react to future needs for both the elementary school and the Dresden School District middle and high schools.
3. Explore whether the present arrangement is still the fairest manner to apportion Dresden School District costs between Hanover and Norwich.
4. Discourage new residential development which will increase the student population beyond the capacity of existing or planned educational facilities.

RECOMMENDED ACTIONS

1. Schedule and publish an annual review of all pertinent statistics and updated projections relative to changes in future school populations of both Norwich and Dresden that might have significant tax implications for Norwich.
2. Review the possible effect of each major new residential development on the future school population. Projects may need to be built in phases to even out population changes.
3. Establish a long-range study committee to report annually on any long-range needs for the Norwich School District that pertain to projected enrollments, future land needs, and future capital expenditures.

Chapter 7

HOUSING PLAN

INTRODUCTION

Housing issues are clearly an important aspect of a town plan. This is particularly true in Norwich, which is primarily a residential community. This plan section presents a perspective on housing issues as they apply to Norwich. Housing markets and issues will change over time, along with the economy and other factors; however, people will always need adequate shelter. Since Norwich is a popular place to live, it will be important to ensure that housing in the town meets these needs.

BACKGROUND

Housing and Market Conditions

In assessing housing issues, it is important to maintain a regional perspective. In this region, the housing stock and pricing can vary significantly from town to town. However, no town is a closed system, where future housing needs can be projected based on an analysis of the current population alone. Housing markets are always regional in nature..regional demographic trends and in-migration/out-migration will affect demand levels and pricing in Norwich. The town is part of a regional market, as many Norwich residents commute out of the town for employment. Given the concentration of employment in the Hanover-Lebanon-Hartford area, the regional market can be thought of in terms of a “ commuter-shed” ..the area from which workers regularly travel to and from jobs. For planning purposes, this “ commuter-shed” is a circle with a radius of 20 miles, centered on the nearby Interstate 91/89 intersection.

The profile section of this plan (Chapter 2.2) documents an essential point about Norwich..the housing stock is strongly oriented toward expensive, single-family homes. While these homes tend to be occupied by the households that own them, there is also an active rental market. Table 7-1 contains a summary comparison of Norwich’ s housing stock with similar data for the commuter-shed.

Table 7-1. Housing Stock Comparison: Norwich, Commuter-Shed (1990)

U.S. Bureau of the Census, Summary Tape File 3A, Housing Characteristics, 1990
 Vermont Department of Health, Population and Housing Estimates, 1991
 Donnelley Marketing Information Systems

	Norwich	Commuter-shed
Population ('91)	3,099	82,136
Median Home Value	\$189,700	\$113,889
Median Gross Rent	\$557	\$443
% Renter-Occupied	29%	25%
Occupied Mobile Homes as % of Occupied Units	3%	9%
Occupied Condominiums as % of Occupied Units	1%	4%

Not surprisingly, Norwich' s owner-occupied housing stock is more expensive than the commuter-shed' s. This reflects the predominance of expensive, single-family housing. Norwich' s housing stock contains a small percentage of mobile homes, which offer an affordable housing option. Condominiums, which offer an affordable housing option in other parts of the state, are also not well represented in the local housing stock.

From a real estate sales perspective, sales of single-family homes dominate the Norwich market. However, there are more frequent recent examples of single-family units being marketed as investment units, with an eye toward the rental market created by employees and students.

Housing Needs

The demographics of a regional housing market can be used to assess general housing needs. While a range of factors including individual preferences affect housing

needs, housing market analyses have made clear that *age* and *income* tell us quite a bit about the kind of housing people want. With data regarding the current and projected mix of households by age of household head and income, it is possible to make broad assessments about housing needs. For instance, a household with a head aged between 25 and 34 years, and an income level in the \$25,000-\$49,999 range, will probably be seeking, or have recently purchased, its first home. Markets with a substantial number of households in this category will be a good one for affordable starter housing. Similarly, most households with incomes below \$25,000 are most likely to be renters, while households with incomes of \$50,000 or more are likely to be established single-family homeowners.

Table 7-2 shows a correlation of Household Head Age and Household Income for Norwich and the commuter-shed.

Table 7-2. Household (HH) Age/Income Distribution: Norwich, Commuter Shed (1990)

U. S. Bureau of the Census, Summary Tape File 3A, Income and Poverty, 1990
 Donnelley Marketing Information Systems

Norwich		Age Bracket (Head of Household)				
HH Income	< 25	25-34	35-54	55+	Totals	
\$0 - 24,999	3%	7%	9%	14%	32%	
\$25,000-49,000	0%	7%	8%	10%	25%	
\$50,000+	0%	6%	29%	8%	43%	
Totals	3%	20%	46%	31%	100%	
Commuter-Shed		Age Bracket (Head of Household)				
HH Income	< 25	25-34	35-54	55+	Totals	
\$0 - 24,999	4%	7%	9%	18%	38%	
\$25,000-49,000	2%	9%	16%	10%	37%	
\$50,000+	0%	3%	14%	7%	25%	
Totals	6%	19%	40%	35%	100%	

NORWICH TOWN PLAN

In Norwich, the most significant age/income household category is that with heads aged 35 to 54 years, with an income of \$50,000 or more. This is, in part, a factor of housing availability..these are the only households that can afford the kind of housing typically available in Norwich. In contrast, the commuter-shed’ s mix of households is more diverse, with no single category dominating.

Since only a segment of all households will be seeking housing at any time, it is helpful to assess the *propensity to move* of age/income categories to estimate the size of housing markets. Households in various age and income groups have markedly varied propensities to move within the course of a year. Most significantly, the propensity to move declines with increasing age and income. Younger, lower-income households are the most likely to move, while older, higher-income households are the least likely to move. By applying average propensity rates to the demographic data shown in Table 7-2, an estimate of the number of households in various age/income groupings seeking to move within the course of one year has been developed. This analysis has been completed on the commuter-shed data, as this illustrates the overall demand for housing in the region. The results of these calculations are presented in Table 7-3, showing the annual distribution of propensity to move, by household age/income breakdown. Note that the values do not indicate new housing needs, but show relative demand levels, by age/income groups, for a change in housing. Most of these needs will be satisfied by existing housing stock.

Table 7-3. Estimated Annual Housing Market by Household (HH) Age/Income: Commuter-Shed (1990)

Donnelley Marketing Information Systems

Commuter-Shed HH Income	Age Bracket (Head of Household)				Totals
	< 25	25-34	35-54	55+	
\$0-24,999	644	658	431	295	2,028
\$25,000-49,999	317	691	686	169	1,863
\$50,000+	65	236	508	109	918
Totals	1,026	1,585	1,625	573	4,809

Overall, approximately 4,800 commuter-shed households will move during a typical year. Regionally, demand levels are highest among households likely to be seeking rental or lower priced, for-sale housing.

Affordability of Housing

In Vermont, it is assumed that housing is affordable if the total monthly cost does not exceed 30% of a household’ s income. Further, affordable housing programs focus on households with an income level below 100% of the median household income, while deeply subsidized housing programs typically focus on households with an income below 50% of the median. Affordable housing levels for commuter-shed residents have been calculated and are shown in Table 7-4. Table 7-4A calculates an affordable monthly *rental* level for households with an income below 50% of the median, while Table 7-4B calculates an affordable housing *price* for households whose income falls below 100% of the median and 80% of the median.

From a commuter-shed perspective, a net monthly rent of \$330 would be regarded as affordable for very low income households. Norwich’ s rental housing price range, with a median level of \$557, does not offer much to these households. From a purchase perspective, a housing price of \$98,000 would be regarded as affordable for a moderate income household. Again, it is unlikely that these households will find much in this price range in Norwich, as the local median value is almost \$190,000.

Table 7-4. Housing Affordability; Rental and Purchase: Commuter-Shed

A. Rental Basis - Commuter-Shed	
Median Household Income	\$32,604
50% of Median Household Income	\$16,302
30% of Monthly Income (Available for Housing)	\$408
Less Utilities/Cost	(\$75)
Affordable Monthly Rent	\$333

B. Purchase Basis

	100% of Median Income	80% of Median Income
Median Household Income	\$32,604	\$32,604
Household Income	\$32,604	\$26,083
30% of Monthly Income (Available for Housing)	\$815	\$652
Less Taxes/Insurance	(\$200)	(\$200)
Affordable Mortgage Payment	\$615	\$452
Affordable Housing Price (10% down, 30 Years, 7.5%)	\$97,729	\$71,827

OBJECTIVES AND POLICIES

Regional economic forces will continue to dominate the housing market in Norwich. No matter how active the town may be in housing issues, it is unlikely to make any significant change in the prevailing market. However, by recognizing local and regional housing needs, Norwich can play a role in providing an adequate housing stock for a variety of population groups.

1. Provide good-quality, affordable housing for all current and future Norwich residents.
 - Trends make it clear that there will be a continued need for additional housing in town. The town should identify and plan new housing growth areas which recognize a diversity of housing needs, according to income and preference.

2. Recognize that Norwich and the region will continue to grow and that there is a regional need for affordable, quality housing. New housing development in Norwich should account for both the needs of local residents and a proportionate share of regional growth.

- Determine Norwich' s “ fair share” of the regional housing need for housing for households of low and moderate income. (See "1995 Fair Share Housing Analysis" prepared by Upper Valley Lake Sunapee Regional Planning Commission.)
- Norwich is unlikely to become a center for subsidized housing in the region. Support infrastructure is inadequate to provide for a concentration of high density housing. Affordable housing efforts in the town are likely to occur in several locations.
- Given the regional market, and the type of household which has found Norwich to be attractive, a likely affordable housing initiative might take the form of a reasonably priced, for-sale development, which could be subsidized with a land-lease shared-equity arrangement through a housing trust, and with Vermont Housing Finance Agency mortgage programs. This would give households in the low to moderate income range (\pm 80% of median) a home ownership opportunity. The Starlake Village project is a good example of a project of this type.

3. Work to increase housing affordability by increasing economic opportunities for low and moderate income households in the region. This requires the recognition that, given our present property tax system, affordable housing is likely to have a net negative fiscal impact.

- The public sector has inadequate resources to supply affordable housing for every household which has a need. By fostering economic activity and the creation of jobs both locally and regionally, Norwich can help to create additional income which will allow more households to secure adequate housing.

4. Allow growth in the housing stock to occur at a rate and in locations which are consistent with the town' s ability to provide services in a fiscally sound manner.

5. Accommodate more housing for seniors near the Village Center or in outlying village centers.

- Senior housing should be located near stores, services, and public transportation.
- Senior housing can be built at a higher density than conventional housing due to lower occupancy per dwelling unit.
- Senior housing can be in any of many forms of ownership: apartments, condominiums, "shared-housing" (single-family home shared by unrelated residents), or single-family homes.

RECOMMENDED ACTIONS

1. Maintain updated statistics on demographic trends and housing for the town and the region to better evaluate the actual housing needs of the community on an ongoing basis.
2. Identify areas suitable for higher-density housing with septic capacity and access to town facilities and services.
3. Revise the zoning and subdivision regulations to allow for the different types of housing needed by the town in appropriate areas and to discourage housing in unsuitable areas.
4. Make provisions for and facilitate the creation of affordable housing when and if it is needed.

Chapter 8

COMMUNITY FACILITIES AND SERVICES PLAN

INTRODUCTION

In a growing town, community facilities and services are often in transition. Existing facilities and services become inadequate as growth occurs. In Norwich, both population growth and the increasing expectations of Norwich residents regarding community services have resulted in facility and service expansions and improvements over the past few years. Town budgets have reflected these changes.

This section contains an overview of town facilities and services from two perspectives: 1) What is the current state of the facility or service and are there deficiencies? and 2) What changes are expected over the next 5 to 10 years? It is the goal of this section to aid the town in anticipating changes over the next few years, and to establish priorities for facility and service improvements during that period.

UTILITIES

Water Supply

The Town of Norwich currently has no direct role in public water distribution. The Norwich Fire District, managed by the Prudential Committee, operates a public water system serving the "fire district" which encompass the historic village center and some outlying areas. This water system has undergone substantial improvement during the past few years. A 1988 well rehabilitation program resulted in substantial water capacity over current needs. The water service area has undergone only minor geographic increases over the past 20 years. The last major expansion in the water service area was to include McKenna Road. More recent expansions have been incremental in nature, and have included only one or two buildings at a time. No significant expansions to the system are anticipated at present. The District's policy for expansions requires a developer to provide complete funding for any system improvements. However, in most instances, the presence or absence of system water is not a limiting factor on development capability in Norwich. The Prudential Committee foresees no major changes to the system during the next few years, but is considering possible connection to the Hanover system as a backup service measure.

NORWICH TOWN PLAN

In some respects, the Norwich Fire District represents a “municipality within a municipality” in Norwich. As the town grows and additional development and service issues are faced, it is possible that the goals of the Town of Norwich and Fire District will be better served by combining efforts. This issue should be considered during the next few years.

Sewage Treatment

There is no public sewage disposal system in the town. The need for a municipal waste treatment system has been looked at in the past and should be re-evaluated, particularly in respect to the Village, Hawk Pine, and the commercial/industrial district on Route 5 South. These areas include higher-density residential development and some areas with poor soils for sewage disposal and a history of failed septic systems. The commercial/industrial district cannot be fully developed without a treatment facility or an alternative system.

Concern about a municipal waste treatment system allowing too much development can be addressed in the zoning regulations. Higher-density development in designated areas closer to existing roads and facilities may be more beneficial in the long term than uncontrolled growth throughout the town.

Solid Waste Disposal

Norwich residents now make use of the Transfer Station off New Boston Road for most of their solid waste disposal and recycling needs. The station is managed by the Norwich Solid Waste Coordinator with the advise of the Norwich Solid Waste Committee. Residents have the option of using a private hauler or bringing their trash and recyclables to the Norwich Transfer Station. Building materials can be taken to a solid waste facility in Hartford. The town’s membership in the Greater Upper Valley Solid Waste District provides Norwich residents with additional options for disposing of hazardous waste and construction materials.

A trash compactor at the Norwich Transfer Station has increased the station’s efficiency and reduced hauling costs. No major capital improvements are foreseen other than purchasing containers, which are now leased. The Greater Upper Valley Solid Waste District has provided a satisfactory solution to local solid waste issues. Hopefully this will continue to be the case and the town will stay a part of the District, which is

currently obtaining permits for its own lined landfill in Hartland. However, current negotiations regarding future landfill options could change the long-term prospects and Norwich should continue to evaluate its alternatives.

Reduction of the volume of solid waste through recycling and the purchasing by residents of goods with less packaging has been a goal of the Norwich Solid Waste Committee and the Greater Upper Valley Solid Waste District. Education of residents and businesses has been an effective tool for reducing the amount of solid waste.

EMERGENCY SERVICES

Police

Norwich presently maintains a full-time professional Police Department. While the Department is available on a 24-hour basis, regular patrol services are now provided for 16 hours each day. The Police Department now has its own facility off Hazen Street. With some minor improvements, this facility will be fully adequate to serve the needs of the Police Department for the foreseeable future.

The Department staff presently includes a full-time chief, three full-time patrolmen, two part-time officers, and a full-time secretary-dispatch-record keeping position. The majority of the departmental budget is allocated to regular patrol operations. In addition to the Police Station, the Department's major equipment needs are its cruisers. Two cruisers are maintained, with a replacement purchased every second year.

Overall, police work in Norwich is likely to increase in proportion to population growth, indicating that the Department will grow, in terms of both personnel and budget. The ratio of current Department personnel to town population is regarded as *below* average in Vermont. The mix of police work in Norwich is not different from that in other towns of similar size. The Police Department does not feel that existing or potential additional business and commercial development will have a substantial impact on police work levels in Norwich. However, investigative work is likely to increase, as there will be more follow-up work on incidents than has been the case in the past. It is important to note that service expectations have increased substantially during the past decade, and that public expectations for police services may increase at a faster rate than the population.

NORWICH TOWN PLAN

Possible future needs of the Police Department may include:

- A new position to handle investigative work and juvenile education (the officer would lecture at schools on a regular basis).
- 24-hour patrols. This would necessitate employing 2½ additional full-time patrol persons, but would not require an additional cruiser. This need is projected in the next 4 to 5 years.

Fire Protection

The Norwich Fire Department is a volunteer force, which maintains its operations in the firehouse behind the Grange Hall, off Main Street. The Department serves the entire Town of Norwich, as well as maintaining mutual aid agreements with several adjacent towns. The Department's financial needs are primarily supported by the town budget. Although the firefighters are paid for responding to fire calls and regular meetings, they put in many additional unpaid hours training and maintaining equipment.

During the past few years, the numbers of fire calls responded to by the Department has stabilized at a level between 40 and 50 per year in spite of the town's growth. This level is relatively low, given the town's size. A substantial increase in activity is not expected, even if the town continues to grow. The Department currently has a volunteer roster of 30 persons. However, only 15 to 20 are active firefighters. Overall, the number of active volunteers has not changed substantially during the past few years. In contrast with the situation in a number of towns in the region, the current number of volunteers is adequate to cover fire calls at any given time of day. However, required training levels have increased significantly; should they increase further, it is possible that the Department will no longer be able to attract volunteers. This would result in the need to consider a full-time Department, or contracting out for fire protection services from an adjacent town.

The Fire Department currently operates a ladder truck, two pumper-tankers, a tanker with a pump, and a light pumper. The town's ISO (Insurance Rating) is 5 on a 1 to 10 scale, which is very good when compared to many towns in the region. This is important both from a safety standpoint and from a financial standpoint, as Norwich residents pay relatively lower fire insurance premiums.

The Fire Department benefits from a mutual aid system and location adjacent to Hanover, which has a full complement of emergency equipment available for use in

Norwich. As such, it will be important to maintain this relationship with Hanover and other adjacent communities in order to avoid the cost of Norwich providing these facilities.

Possible future needs of the Fire Department:

- A replacement pumper-tanker will be required during the next 5 years. The cost, in current dollars, will be approximately \$175,000. Funds are currently being reserved for this purchase.
- A replacement ladder truck is likely to be required during the next 10 years. The cost, in current dollars, will be approximately \$300,000.

Fire prevention and preparedness can significantly reduce loss from fire without expanding the town budget. New development should be designed to provide access for fire trucks and an adequate water supply to fight fires. Homeowners should install and maintain smoke detectors, inspect fire extinguishers, install woodstoves properly, and inspect and clean chimneys. Driveways should be plowed and sanded to a width that will accommodate a full-sized fire truck.

The town has excellent water supply for fighting fires in and near the village due to the good pressure and capacity provided by the Norwich Water District hydrants. In outlying areas, water is brought from the Village by tankers or pumped from rivers, streams, or ponds. The Fire Department is currently taking an inventory of ponds and evaluating them for use as water sources. A pond or ponds with an approved hydrant system accessible to fire trucks in every area of the town would be a valuable resource for fighting fires. Landowners should be encouraged to install dry hydrants when building or renovating ponds.

First Response and Emergency Medical Services

First response and emergency medical services are provided by the Town of Hanover through a contractual agreement based on both a per-capita payment from Norwich (now \$9.00 per capita annually) and user fees. Fees not paid by the user must be paid by the town. Future service cost increases are likely to be covered by user fees, rather than through the per-capita fee.

NORWICH TOWN PLAN

Given the investment involved in equipment and personnel, this agreement is advantageous to Norwich. It is expected that this arrangement will be continued for the foreseeable future.

Emergency Dispatch and 911

Now 911 emergency calling is available to all Norwich residents and businesses. Calls are received by the Town of Hartford's dispatcher who has radio contact with the Norwich Police and can call out the Norwich firefighters through their pagers. Ambulance call information is relayed to the Hanover dispatcher.

The numbering of street addresses for all structures is an important component of quick emergency response. Norwich has created official names for all public roads and for private roads serving three or more residences. Street numbers based on distance from the beginning of the road have been assigned to all residences and businesses.

HIGHWAYS

The Norwich Highway Department maintains responsibility for town highways and bridges. The Road Commissioner oversees department activities and maintains a liaison with the Selectboard, while the Road Foreman directs the day-to-day activities of the Department staff. The Highway Department is based in the town garage off the New Boston Road.

The Department currently has six full-time employees, with the last addition to its personnel being made in 1990. Major Department equipment includes the garage building, four plow-dump trucks, a pickup truck, a loader, a back-hoe loader, and a grader. Based on past performance, it appears reasonable to estimate that each truck has an effective life-span of 8 years. Road maintenance/snow removal work is handled with both town staff and equipment and outside contractors. Major road improvement projects are typically contracted out.

The past 5 years have been a period of significant budget increases for the Highway Department. This is, in part, a result of a concerted effort to bring major pieces of equipment up to date. At this point, it would appear that future equipment purchases

will be handled on a planned replacement schedule. In 1994, a new road grader, loader, and back-hoe were acquired on a 5-year lease-purchase program. Budget increases have also resulted from higher real costs for road materials (gravel, asphalt), and road maintenance operations are more frequent because of higher traffic volumes on virtually all roads. In addition, many town roads are at the narrow edge of recommended size. As such, any significant increase in traffic loading typically results in a need for some reconstruction work. Finally, it is apparent that Norwich residents have raised their standards for road maintenance, and currently expect quicker service than in the past.

The Highway Department is likely to have a number of significant capital needs in the coming years:

- The highway building currently needs an additional full work-bay and two half work-bays. Possible cost is \$200,000.
- A new salt shed may become a need in less than 5 years. The potential cost is \$75,000.

TOWN GOVERNMENT AND ADMINISTRATION

Town Clerk/Treasurer

The Town Clerk and Treasurer functions are presently combined in Norwich. The office currently employs three full-time persons. Working and vault space has been limited in the past but has been remedied with the renovation of Tracy Hall in 1994. Because the office is open during weekday hours, it handles many administrative matters over and above those typically associated with Clerk/Treasurer operations. This puts an added burden on personnel in the office, and should be considered when evaluating the need for creating additional administrative positions.

It is reasonable to project that continued town growth will contribute to the growing workload in this office. Further, state and federal mandates will increase office workload with or without growth. With the assumption of continued growth, the Clerk and Treasurer functions are likely to be separated in the future. This may entail additional personnel, office equipment, and a reorganization of working space which has been taken into account in the renovation of Tracy Hall.

Selectboard

Overall, the Selectmen indicate that little change is likely in their operations over the next few years. However, they do feel that they, along with other concerned groups, will be facing a number of critical facility and service-oriented issues. These include:

- The possible purchase of additional recreation land.
- The potential of the town taking over the Fire District.
- The potential for a public sewage system.
- The potential of the town taking over currently independent functions such as the Recreation Council or the Norwich Library.

It is reasonable to assume that Norwich will face some administrative challenges during the next few years. The potential for placing additional services under the town's care, such as the library, water system, or Recreation Council, along with overall growth, will clearly increase administrative work-loads. As the work increases, the town will need to consider alternative or supplemental administrative systems.

Listers

The three elected Listers are assisted by a part-time administrative assistant and a professional outside appraiser. As the town grows, the listing process becomes more complex and a higher level of technical expertise is needed to insure fairness in property valuations. Maintaining detailed records of the nearly 1,700 properties and businesses requires efficient computer equipment and software. Appraising commercial properties may require more use of outside consultants.

Planning and Zoning

The Planning and Zoning Office is staffed by one full-time administrator who performs the duties of the Zoning Administrator, the Septic Officer, and the Clerk for the Planning Commission. The administrator also assists the Zoning Board of Adjustment in preparing for hearings, coordinates town planning activities, and maintains the Geographic Information System (GIS). There is no anticipated need to increase staff for this department unless new zoning and subdivision regulations were to substantially increase the review of development projects at the town level.

TECHNOLOGY

Most town departments are using PC computers for word processing, data storage and retrieval, and accounting. Although each department has its own unique information needs, they often use the same data: names and mailing addresses of landowners, location and size of parcels, and budget information. Currently, data are exchanged between departments by hard copy (on paper) and occasionally on computer disk. In time, it may become more efficient to network the computers in the town offices so that changes in basic information such as property owners or their addresses, or monthly budget updates are easily available to all departments.

The Norwich Planning and Zoning Office has created a Geographic Information System (GIS) using mapping and data produced by the state and the town with state planning funds. Detailed layers (scale of 1:5,000) include parcels, roads, land cover, and surface waters. Less accurate layers (scale of 1:20,000 or greater) include soils, contours, wetlands regulated by the state, and potential deeryard areas. The GIS contains visually represented information similar to a conventional map along with unlimited data that can be accessed with a computer. Maps using any combination of layers may be either on a computer screen, on conventional printers, or on large color plotters. The Norwich GIS is currently being used by the Planning and Zoning Office and the Listers. Maps produced by the GIS are being used by all departments including Police, Fire, and Highway. The town GIS is based on a standard adopted by the state so that information developed by state and regional agencies can be used by the towns.

RECREATION

Recreation in Norwich includes programs organized by the Norwich Recreation Council using town facilities, and the unorganized individual use of town facilities, trails, roads, and rivers.

Organized Recreation

The Norwich Recreation Council manages a year-round recreation program for all Norwich residents. The Council is an independent organization, which is supported by fees, donations, and an annual appropriation from the town. In 1994, the town assumed responsibility for the Council's financial operations. The Council pays some

NORWICH TOWN PLAN

instructors and a part-time director, but primarily depends on volunteers from the community.

While historic statistics are not available, overall recreational participation has increased substantially in recent years, with some programs (youth basketball, baseball, softball, and soccer) increasing by more than 30% in the past year. Participation levels and overall demand have grown to a level that makes administration of the programs more time-consuming and complex than in the past. This could change the overall scope of the organization if growth continues for the next few years.

Facilities include:

- Huntley Meadow, with four tennis courts and three fields used for baseball, soccer, and lacrosse.
- The Norwich Green, with a field for soccer and baseball.
- Two gyms: Marion Cross School and Tracy Hall.
- The Norwich Pool.
- Barrett Meadow, with a small field for limited activities.

The two gyms are sufficient for current and foreseeable needs, but an additional playing field is necessary to accommodate growth, provide more flexibility in scheduling, and reduce the intense usage of the Green. The Norwich Pool may need some major structural work in the near future.

Currently, the Recreation Council offers some non-athletic programs such as quilting, theater, and television production, and sponsor some special events such as dances and bike rodeos.

There is an expressed need in the community for after-school programs for elementary school-age youth and teenagers, and for a community center to be used by all ages for social and cultural activities. Accommodating these needs would represent a major increase in activities and facilities for either the Recreation Council or another community group.

Unorganized Recreation

Norwich's trails and Class 4 roads are used for hiking, mountain biking, horseback riding, and cross-country skiing. Town residents also have access to the Appalachian Trail, the Reservoir Trail along the Charles Brown Brook on the Fire

District land, the Norwich Nature Trail near the school, the Hazen Trail south of the Montshire Museum, and the trail to Gile Mountain. Many of these trails could be connected to create a network of recreational trails throughout the town with the cooperation of private landowners. The town and the Norwich Fire District have negotiated an agreement for the Fire District land south of Beaver Meadow Road to be managed for recreational use by a committee of town residents.

Bicycle and pedestrian paths, as discussed in the Transportation chapter of this plan, are designed primarily for people going from one place to another without having to use a car but are also used by bicyclists, joggers, and cross-country skiers for recreation.

The Connecticut and Ompompanoosuc Rivers also offer recreation for Norwich residents. There are two access locations to the rivers for launching boats, one along River Road owned by the town and one in Pompanoosuc owned by the state. There is no shoreline location along the river easily available to Norwich residents for swimming.

NORWICH FIRE DISTRICT

The Norwich Fire District, created in 1922, operates as municipal entity within the town with its own right to tax and create ordinances. A three member Prudential Committee elected by the voters of the District governs the District which includes the Village Business and Residential Districts and some additional properties along Route 5 North. Over the years, the District has performed various governmental services for its constituents and the residents of Norwich that include zoning ordinances before town wide zoning was adopted, operating the volunteer fire department prior to the town taking over, installing sidewalks, and enacting specific ordinances regarding hunting and canine control. Since the 1971 purchase of the privately owned Norwich Water Supply Company, the District has operated a municipal water department (See Water Supply, page 8-1). The Norwich Fire District owns over 870 acres of land, most of which is in the watershed of the Charles Brown Brook, the former source of water for the municipal system.

NORWICH LIBRARY

The Norwich Public Library is an independent organization that receives an annual appropriation from the town. The library operation has grown substantially during the past decade, and is a very different operation from that 10 years ago. During the past few years, Norwich residents have increasingly depended on the Norwich Library for regular library services. Where many Norwich residents formerly used the Howe Library in Hanover for reference and research, they are now expecting these needs to be met in Norwich. This trend is putting a great deal of pressure on the library operation, in terms of both resources and space. The increased use of the library, and the new forms of media which it now circulates, have led to severe space restrictions within the current structure. The library's *draft* Five-Year Plan addresses some of these issues.

Library-related issues and facility needs during the next few years are likely to include the following:

- The 5-year plan envisions physical expansion of the library in approximately 1997.
- A full-time professional librarian is likely to become a staffing need in the future.
- The town may want to assess the feasibility of taking over some of the library's administrative functions.

CEMETERIES

Of the eight cemeteries in Norwich, only Hillside has lots still available. Space is adequate for the short term, but may run out in 10 to 15 years. There is a potential site on Norwich Fire District Land on Beaver Meadow Road which the Cemetery Commission would like to acquire for a future cemetery.

The income from the Perpetual Care Fund covers from 20% to 50% of the amount the town is spending on maintenance in the cemeteries. This percentage fluctuates based on interest rates and the amount spent on restoration of head stones.

CHILD CARE

In 2003, the Vermont Legislature added a thirteenth goal to Chapter 117, § 4302, which addresses the general purposes of municipal and regional planning and development: “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.”

Currently, there are two licensed daycare facilities in Norwich . There may be a need for infant care for young families, as well as for expanded daycare services in Norwich, but this need is undocumented. The Utility/Facility Map should locate the licensed day care facilities in Norwich. Norwich supports the private development of additional facilities to meet the child care needs of its residents and may encourage these facilities to seek grant funding.

GOALS, OBJECTIVES AND POLICIES

A number of Norwich’ s facilities and services are likely to undergo changes over the next few years. Local and regional growth, increasing service expectations, and the availability of improved technology will result in changes in the ways and levels at which services are delivered. In Norwich, these changes have resulted in significant budget increases for services like the highway department, and the potential for new ways in which independent services like the library and recreation program will be operated. It is important to keep in mind both the present and potential future capacities of facilities and services in order to insure that they are capable of providing adequate service to all residents, and that growth does not outstrip the fiscal capacity of the town to provide these services in a fiscally prudent manner.

Goal

Development and growth in Norwich should occur at a rate that can be accommodated by reasonable expansion and/or improvement of facilities and services.

Objectives and Policies

1. Develop a capital improvement program and budget based on the needs of specific

NORWICH TOWN PLAN

facilities and services that is consistent with a moderate amount of new growth and development in Norwich.

2. Focus facility and service improvements on existing development areas and areas that are designated for future growth, such as outlying village centers.
3. Determine an appropriate role for private sector contributions to public facilities and services, including the possibility of impact fees, user fees, and fund raising.
4. Continue to work for long-term solutions for the disposal of solid waste and hazardous waste through regional cooperation, and the reduction of the volume of solid waste through recycling and consumer education.
5. Determine if a public wastewater treatment system would create a basis for concentrating growth in designated areas.
6. Determine if the large number of on-site septic systems in the Village area is creating a public health hazard which warrants a public wastewater treatment system.
7. Assess the efficiency of Norwich' s current town administrative system, and give consideration to the demands that additional services and townwide growth will place on this system. In the event that the current system will not be capable of handling these administrative needs, consider alternatives.
8. Provide recreation facilities and programs for all residents of all ages. A special emphasis should continue on programs for youth with volunteer coaches or instructors from the community.
9. Explore the need for a cultural/recreation center and how funds could be provided for its creation and continued operation.
10. Expand the recreational trail network in Norwich.

11. Create additional locations to access the Connecticut and Ompompanoosuc Rivers.
12. Ensure the availability of safe and affordable child care in Norwich and to integrate child care issues into the planning process.

RECOMMENDED ACTIONS

1. Create a Capital Improvement Program that includes all capital construction and purchases over 5- and 10-year periods. The plan should be updated each year. The purpose is to spread costs evenly over time and to anticipate major construction projects.
2. Conduct a feasibility study for a municipal wastewater treatment plant to serve the Village, commercial district, and other potential development areas. The study should look at existing health hazards and ground-water pollution, potential tax base benefits, and the effect on future development in the Village and the Town.
3. Form a "Technology Committee" with representatives from each town department to ensure that computer and communication equipment purchases are coordinated and compatible between the town departments.
4. Continue discussions between the Norwich Fire District and the Town regarding the management of the Fire District Land for town recreation, the extension of water service to any areas intended for commercial development or higher-density residential development, and the eventual operation of the water department by the Town.
5. Review police operations and demands for service annually to determine the need for 24-hour patrol or other changes in police coverage.
6. Continue support for the Norwich Volunteer Fire Department with good equipment and opportunities for training. All new development and private roads should be built to permit all-season access by emergency vehicles. New developments should have an adequate supply of water for fire fighting nearby.
7. Encourage landowners constructing new ponds or having existing ponds to make

NORWICH TOWN PLAN

provisions for using the pond as a source of water for fighting fires. These may include a hydrant and a maintained access road.

8. Acquire recreation land for additional playing fields.
9. Set up a committee to explore the need for a cultural/recreation center and how funds could be provided for its creation and continued operation.
10. Form a Trails Committee to coordinate long-range planning of an expanded trail network in Norwich. The Committee should include representatives from the Conservation Commission, the Planning Commission, the Recreation Council, and users from the community.
11. Acquire land for future cemetery use.
12. Explore options for additional locations to access the Connecticut and Ompompanoosuc Rivers for recreation.

Child Care

13. Work with the Regional Planning Commission to conduct a needs assessment.
14. Maintain an inventory of all childcare programs.
15. Address barriers to increasing capacity created by zoning regulations.
16. Work with developers to consider the childcare impacts of their developments.
17. Encourage private day care facilities to consider seeking grant funds to assist with the development of childcare infrastructure.

Chapter 9

TRANSPORTATION PLAN

INTRODUCTION

Transportation facilities in Norwich primarily include town and state highways, but they also include private roads, railroad lines, bus routes, bikeways, and pedestrian paths. These facilities provide connections between homes, businesses, recreation, and workplaces in the community and beyond.

There is a direct relationship between land use and transportation. Better roads may promote more intense land use if zoning provisions permit and poor roads will discourage most types of land use. Transportation planning should be coordinated with land use planning by maintaining and upgrading roads based on the long-term planned growth and use of the areas served by the road, and by limiting new land uses to those that can be adequately handled by existing and planned transportation facilities.

This chapter is presented in five sections: Town Highways, Private Roads and Driveways, Public Transportation, Regional Transportation System, and Pedestrian and Bicycle Paths.

TOWN HIGHWAYS

Background

In the late 1700's, when Norwich was first settled, many of the roads were laid out and built by original investor/settlers to encourage development and increase the value of the land in the outlying areas such as Beaver Meadow, New Boston, and Union Village. Agricultural and forest products were processed in the town for local trade and export. The commerce of the town depended on roads to move goods around town and to the river and later to the railroad depots in Lewiston and Pompanoosuc. By the mid 1800's, there were well over 100 miles of roads versus the 85 miles currently maintained.

As the population moved West, many of the homesteads were abandoned and roads to the less productive land were no longer used or maintained. By 1931, road mileage had dropped to 72 miles. Now some roads no longer exist or are non-

NORWICH TOWN PLAN

maintained (Class 4) roads or trails.

Even with the population now exceeding the historic highs of the 1830's, very few new town roads have been built. Most development has occurred along the existing roads. The exceptions are roads in residential developments such as Hawk Pine, McKenna Road, Carpenter Street, Hazen and Cliff Streets, and Huntley Street. There has been some pressure to upgrade portions of Class 4 roads to Class 3 to accommodate more development.

With the exception of the state highways (Interstate 91, Route 5, and River Road), 76 miles of public roads in Norwich are maintained by the town with some financial aid from the state based on the class and mileage of the town roads.

Road Classifications and State Aid

Class 1 - Heavily travelled roads that are extensions of the state highway system and are assigned a state route number. There are no Class 1 town roads in Norwich.

Class 2 - Major roads that do not meet the criteria for a Class 1 road but still may have a state route number and serve as through roads from one town to another. Route 132, Union Village Road, and Beaver Meadow Road are Class 2 roads. Class 2 roads are usually paved. Norwich has 14.5 miles of Class 2 roads and received \$3,541 of state aid per mile to maintain them in 1993.

Class 3 - Roads that are maintained to be passable at all times of the year by a regular passenger car and are not Class 1 or Class 2. They are usually gravel roads although in Norwich there are 11 miles of paved Class 3 roads. Norwich has a total of 61.4 miles of Class 3 roads and received \$1,184 of state aid per mile for their maintenance in 1993.

Class 4 - Non-maintained or partially maintained town roads. The town receives no funds from the state to maintain these 18 miles of roads. Some Class 4 roads are privately maintained by landowners and some are essentially trails which may or may not be passable by a vehicle.

Legal Trails - Town-owned rights of way that are not maintained and may not be open to vehicles. There are no legal trails in Norwich.

Road Maintenance and Construction

The Selectmen have responsibility for building and maintaining town roads. They appoint a Road Commissioner, and hire a Road Foreman. The Road Commissioner is charged with overseeing the roads and rights of way, and overall maintenance strategies, and is the Selectboard's liaison with the Road Foreman. The Road Foreman supervises the Highway Department, the workers and equipment. There is an elected Road Committee that advises the Selectboard on long-range road planning issues.

For an additional discussion of the Highway Department, see Chapter 8, Community Facilities and Services.

The town has several ordinances and policies relating to town roads. These include:

- Road Specifications - 1976
- Class 4 Road Policy - 2/28/89
- Scenic Road Ordinance - 10/30/89
- Criteria for Accepting Roads - 12/8/92
- Private Highway Specification Ordinance - 4/30/93 (Revised)
- and several Speed and Parking Ordinances.

Road Maintenance

Road maintenance is budgeted in three categories: winter maintenance (snow removal and sanding), summer maintenance (grading, paving, ditching, and replacing culverts), and capital improvements (bridge replacement, road relocation, and widening and straightening).

Road maintenance is always a difficult balance. With a limited budget, is it better to completely rebuild a short section of highway versus patching or skim-coating longer sections of road only to repave a few years later? Is it better to add gravel each year or to rebuild the roadbed and ditches to avoid erosion? These are the kinds of decisions being made by the Selectmen, the Road Commissioner, and the Road Foreman. The inconvenience of a badly deteriorated road or a closed bridge is not well received by the taxpayers. Nor are ever-increasing highway budgets.

Many towns are now using computerized Road Surface Management Systems to help with long-range maintenance and capital improvements. This may be an appropriate way for Norwich to evaluate the cost effectiveness of different maintenance strategies.

Upgrading Existing Roads

The town needs to make informed decisions on whether existing roads will handle additional traffic and, if so, whether they can or should be upgraded. Widening, straightening, or paving may increase safety, but may also increase the speed of traffic, encourage more development, and destroy the scenic beauty and rural character of Norwich's back roads. The town should find a way to provide safe roads without improving them to typical Class 2 or 3 standards if it will adversely affect the rural character of the Town.

Class 4 Roads

Class 4 roads are town highways that are not maintained for year-round travel. The town must replace larger culverts and repair bridges on Class 4 roads, but they are not otherwise maintained. Landowners whose property is accessible by a Class 4 road may maintain the road themselves with permission from the Selectboard.

Class 4 roads form a part of a long-standing network of trails/tracks used for recreational purposes. In the future, some Class 4 roads could be upgraded to Class 3 to increase the efficiency and safety of the town's road system or to allow development in suitable areas. Many areas along the western and northern boundaries of Norwich are inaccessible from each other without first travelling back to the center of the town. Upgrading of some existing Class 4 roads to Class 3 would create alternative routes for emergency vehicles and detours if roads are closed in major storms. In some cases, Class 4 roads provide the only access to individual properties. Careful consideration should be given to the value of Class 4 roads and how they may contribute to the quality of life of Norwich's residents.

New Roads

With the exception of Interstate 91, in recent years new roads in Norwich have been built only to accommodate specific new developments or to relocate an existing road. New roads constructed by developers are under the jurisdiction of the Planning Commission and must meet private highway standards, if serving two to 10 residential lots, and Class 3 road specifications for 11 or more lots. There is a more detailed discussion of private roads in the following section.

Occasionally there are requests by developers or landowners for the town to take ownership and, thereby responsibility for maintenance, of a private road. In December of 1992, the Selectmen adopted a policy for accepting ownership of private roads based on the density of housing on the road and other uses of the road such as connecting with other town roads or accessing public lands.

In the future, there may be a need for additional town roads for any of the following reasons: to reduce congestion on existing roads by creating alternative routes, to create alternative routes for emergency access to outlying areas of the town, and to allow a specific type or level of land use in a specific area.

Scenic Roads

Norwich has many beautiful rural road corridors that provide pleasant travel and vistas for residents and visitors alike. In order to preserve their beauty these roads need to be protected from unnecessary "improvements" and development. Many of Norwich's roads, paved and unpaved, could be considered scenic. However, as the pressure to grow increases, many of our roads' scenic qualities may be destroyed. Some of these qualities include views of the New Hampshire mountains and the Connecticut River, stone walls, majestic trees, fields and brooks, to name a few. In 1977, legislation was passed that provides towns with the authority to designate roads as scenic. In 1989, the town enacted its own Scenic Road Ordinance in order to keep the designation local and out of state tourist publications. Bragg Hill Road, Jericho Street, and Goodrich Four Corners Road have been designated as scenic. The Scenic Road Ordinance does not actually protect the "scenic vistas" but it does protect some scenic characteristics within the road right of way (usually 50 feet wide) such as trees and stone walls while still allowing regular maintenance.

PRIVATE ROADS AND DRIVEWAYS

Private roads in Norwich range in length from short driveways the length of a car up to $\frac{3}{4}$ mile paved roads serving more than 20 homes. These roads are maintained either by an individual landowner, a group of landowners, or a landowners or condominium association. The town has three primary concerns with private roads. First, that the

NORWICH TOWN PLAN

intersections of private roads with town roads are designed to be safe and not cause damage to the town roads. Second, that they are built and maintained so that emergency vehicles are able to reach residences. Third, that new driveways are built with minimum impact on significant natural resources and scenic views.

The town has the authority and responsibility to regulate private roads with regard to safety issues, and does so with two ordinances. The Norwich Driveway Access Ordinance regulates how any new private road shall intersect a highway. The Norwich Private Highway Specifications Ordinance regulates the construction of any new private road serving from two to 10 residences. Both of these ordinances have been updated on a regular basis. Private driveways serving a single residence are only subject to regulation of their access to the town highway. Private highways serving 11 or more residences must be built to meet Public Highway standards. Pre-existing roads are exempt unless their use changes.

The use of shared driveways will reduce the number of new driveways intersecting town roads. Currently, shared driveways must meet the Norwich Private Highway Specifications, but single residence driveways do not. This could create an incentive to not use shared driveways.

The Natural and Historic Resources chapter (Chapter 5) describes the type of natural and scenic areas that driveways and private roads should not impact, such as wetlands and ridgelines.

PUBLIC TRANSPORTATION

Norwich residents' access to public transportation includes taxis, a regional bus system (Advance Transit), a van for seniors based at the senior center in White River Junction, and a district school bus system. There is also an inter-city bus (Vermont Transit), train service (Amtrak), and a regional airport in West Lebanon connecting the region to New York, Boston, and beyond.

There are a number of difficulties in serving a rural community such as Norwich with local public transportation, the primary one being relatively few people going to the same place at the same time on a regular basis. Also with uncongested highways and

usually available parking, there is little motivation for drivers to give up the convenience of their car. The cost of providing service convenient enough to entice a large percentage of drivers out of their cars and onto public transit may far exceed the benefits of less pollution and more conservation of energy.

The current Advance Transit bus system connects Norwich Village with hospitals, centers of employment, and retail shopping areas in the Upper Valley. Without a "park and ride" lot or expansion of the route in town, this system mainly serves the Village residents and businesses. The riders are mostly commuters going to Dartmouth College or the Dartmouth-Hitchcock Medical Center where they do not need their car during the day and parking is limited. In 1992, the estimated annualized ridership from Norwich was 2,168 trips.

The most efficient form of public transit in the community is the school bus system, with groups of passengers (students) going to the same destination at the same time. Still, there are many parents who drive their children to and from school, creating congestion in the Village at the beginning and end of the school day.

A van operated by the White River Council on Aging provides transportation for seniors to the Bugbee Senior Center in White River Junction, medical appointments, and shopping trips. Although donations are accepted, this service is supported by local and federal subsidies.

Directing future development in Norwich into village centers and "clusters" rather than in "suburban sprawl" will facilitate the future expansion of public transportation by creating population centers within walking or bicycle distance to pick-up points.

REGIONAL TRANSPORTATION SYSTEM

Regional transportation planning in Vermont is now more and more the responsibility of the Regional Planning Commissions rather than state highway engineers in Montpelier. The Upper Valley Lake Sunapee Regional Planning Commission has a Transportation Advisory Committee (TAC) with representatives from the member towns in both Vermont and New Hampshire. The TAC creates a Regional Transportation Plan that is coordinated with land use planning and is responsive to local needs and concerns.

NORWICH TOWN PLAN

The Vermont Agency of Transportation will use the Regional Transportation Plan for determining which projects they will fund and the priority of these projects.

Of special concern to Norwich is traffic generated in other towns which flows onto Norwich roads and particularly through the Village. Over time, rapid growth in Sharon, Strafford, and Thetford could seriously affect traffic in Norwich Village and on Route 132. Conversely, Hartford is concerned about development along the southern border of Norwich which will increase traffic using Hartford's roads.

Traffic between Norwich and Hanover will utilize a rebuilt Ledyard Bridge in the short term, but in the long term an additional bridge across the Connecticut River might be the only way to save both the Norwich Village area and the Hanover downtown from too much traffic. Traffic coming from beyond Norwich to beyond Hanover should have an alternative route.

PEDESTRIAN AND BICYCLE PATHS

Safe and convenient pedestrian and bicycle paths connecting the Village, the Ledyard Bridge, recreation areas, and outlying population centers would provide for an alternative mode of transportation. Although portions of the Village have sidewalks and there are some existing trails and Class 4 roadways, generally pedestrians and bicycles share the roads with cars. US Route 5 North has become a major regional bicycle route. Separate paths would be safer than wider roads with a path marked on the side and could be used for cross-country skiing in the winter.

The Norwich Conservation Commission's Trails Committee has been identifying potential bicycle paths and trails, and sources of funding. They have also been working with groups from other towns within the region to coordinate a network of regional trails and bicycle paths. A path connecting Huntley Meadow with the Village Green has been a high priority.

The proposed replacement for the Ledyard Bridge includes separate lanes for both pedestrians and bikes. A town committee is working with the Selectboard to design improvements to the corridor between the new bridge and the Village with special focus on pedestrian and bicycle paths.

TRANSPORTATION GOAL

To provide and maintain safe and efficient transportation facilities that serve the existing and planned land uses throughout the town and that are consistent with the rural character of Norwich.

OBJECTIVES AND POLICIES

Town Highways

1. The existing status of all town roads should be determined based on standards suitable for a rural Vermont town.
2. All proposed major changes in land use, due to either new projects or changes in zoning districts, should be evaluated based on the available or planned capacity of roads serving the area.
3. Long-term solutions to traffic congestion other than widening roads or installing signals should be considered, such as creating alternative routes and directing development to locations where there is existing capacity.
4. A long-range plan for future roads and trails should be prepared and updated on a regular schedule.
5. Scenic Roads in Norwich should be identified and maintained as such.
6. Town roads should be maintained at their current level of service and not upgraded unless current pressure of traffic or future planned traffic warrants. In all cases, the aesthetic enjoyment of travelling on the road in addition to safety and cost should be a consideration in decisions regarding changes within the right of way.
7. Decisions regarding the upgrading of roads, reclassification of roads, or creation of new roads should be made by the Selectboard after consultation with the Planning Commission, Conservation Commission, and Road Committee, as deemed necessary and after the required public hearings.

NORWICH TOWN PLAN

8. Proposed Land Use Maps prepared by the Planning Commission should include information on the existing and proposed level of service of roads.
9. The potential value of Class 4 roads for recreational trails or for future roads should be taken into consideration before any reclassification or change in these roads.

Private Roads

1. The town should continue to regulate intersections with private roads and town roads by providing standards for sight distance, intersection angle, percent of grade at intersection, and any other criteria to promote safety and prevent damage to town roads.
2. The use of shared driveways to reduce the number of private roads intersecting the town roads should be encouraged.
3. The Town should continue to regulate the design and construction of private roads serving two or more houses, and should consider the regulation of private driveways for single family residences, to ensure that access will be possible by emergency vehicles and to generally promote safety.
4. Where possible, private road accesses should be within 100 feet of existing tree lines, stone walls or other topographical features, or below 100 feet of the highest point of elevation on a ridgeline to protect the rural character.

Public Transportation

1. Make better use and increase awareness of existing public transportation, and create a demand for better service to eliminate future traffic congestion in the town.
2. Promote use of public transportation by providing "Park & Ride" lots, bike racks at bus stops, bike racks on the buses, small bus stop shelters, and whatever else that will make public transit more convenient.
3. Encourage carpooling and the use of Ride-Share bulletin boards.

4. Encourage more students to use the school bus system to alleviate traffic congestion in the Village.
5. Ensure safety of the school bus routes by improving road conditions at and around each bus stop and installing adequate signage related to each bus stop. An additional objective is to decrease the likelihood of accidents by reducing traffic violations on bus routes, including bus stop violations.

Regional Transportation

1. Norwich should actively participate in the regional transportation planning process to ensure that regional plans support the goals, objectives, and policies of the Norwich Town Plan.
2. The traffic impact on Norwich of major development in surrounding towns should be evaluated and, where not conforming to the existing or planned capacity of Norwich roads, should be opposed.
3. Active review of plans to build an additional bridge between New Hampshire and Vermont north of Interstate 89 should be encouraged.

Pedestrian and Bicycle Paths

1. Create pedestrian and bicycle paths connecting village centers, recreation areas, town facilities, and paths to other towns to promote health, safety, and an alternative mode of transportation in Norwich.
2. All transportation planning and review of future development should allow for non-motorized transportation paths wherever possible.

RECOMMENDED ACTIONS

1. The town should develop a road capacity map based on the current number of dwelling units, width of roads by one-half mile increments and any other relevant factors. Determine the minimum road standards that are acceptable. Ensure that speed limits be consistent with roadway design and capacity.
2. The Planning Commission may use the road capacity map as a guide to determine if proposed developments will have adverse impacts on road capacity.
3. The Road Committee should continue long-range planning for maintenance and capital improvements of roads and bridges utilizing whatever tools (Road Surface Management Systems, GIS) are available and appropriate. Plans should be reviewed by the Planning Commission and Conservation Commission to ensure coordination with land use planning and resource protection.
4. A map of potential future roads and pedestrian paths should be prepared by the Planning Commission and updated periodically.
5. The town should review the Class 4 road policy with the following factors of specific roads in mind:
 - a. Is it important for recreational purposes? Does it fit into an existing network of trails? Does it provide access to public land?
 - b. What is its condition as a roadway? To upgrade to Class 3, would it cost more because of its steepness, geological formations, or environmental implications than building a new road in a different location?
 - c. Is it located in an area that is considered developable or under consideration for future development? Is it located in an area in which, for the foreseeable future, no development is planned?
 - d. Could it serve as a link between existing Class 3 roads and, if so, would it be beneficial to the vehicular transportation network?
 - e. Should the road be discontinued because of its physical condition, thus relieving the town of any liability? Should it be a town trail with the town retaining the

right of way, or should ownership revert to the abutting owners?

f. Should the road be discontinued to discourage development in surrounding towns?

g. Is it valuable historically because of once being a major thoroughfare that was significant in the development of the town?

h. Abutting owners should be consulted for their views.

6. The process of designating and maintaining Scenic Roads should include the following:

a. Require a public hearing before any road could be upgraded, paved, or widened beyond its present width.

b. Require the town Road Commissioner prior to any significant road change to present to the Planning Commission for review a drawing (not necessarily of professional quality) which clearly shows any changes or improvements planned, including destruction of trees, walls, or particular natural features of the area, areas and depth of fill, graded areas, etc.

c. Require the Road Commissioner to get approval of the town Tree Warden before removing trees in the public right of way. The Tree Warden should obtain whatever advice is needed from the County Forester in order to make an informed decision.

d. Require the Road Commissioner to report trees or stone walls that are damaged during road work or plowing. The town should consider the cost of repair or replacement as an integral part of town road costs.

e. Once the Selectmen have been advised of a potentially scenic road, survey each road's residents to find people interested in forming a subcommittee to conduct the inventory process.

7. The Planning Commission should determine the need for and recommend to the Selectmen minimum standards for new private driveways for single-family residences.

8. A study should be conducted to determine how to increase the percentage of students using the school bus.

NORWICH TOWN PLAN

9. School Bus Route safety should be addressed:
 - a. By an annual assessment of the bus routes by a representative from the School Board and Selectmen studying each route and bus stop site for:
 - i. Road safety in relation to routes and stop sites.
 - ii. Adequacy of signs.
 - iii. Safety of each stop site.
 - iv. Overall efficiency of each bus route and viability of each stop site.
 - b. By the representatives then recommending to the Selectmen:
 - i. Road improvements.
 - ii. Sign installation.
 - iii. Specific patrolling needs.
 - c. By recommendation to the school bus contractor that he maintain or change each stop site and each route accordingly. This should be done in the fall to ensure an opportunity for inclusion in the budget discussion.
 - d. By recommending closer communication between the road crew and the bus contractor. Bus routes should continue to be given priority on the plowing schedule. There should be increased, methodical, and consistent police patrolling of the bus routes at pick up and drop off times. School bus drivers should report any violations which our local police can pursue.

Chapter 10

ENERGY RESOURCE CONSERVATION PLAN

INTRODUCTION

Energy is an important factor in the economic, environmental, and social well-being of our community. Practically every decision we make or action we take affects energy use or production. And, in turn, energy use and production affect our future decisions and actions.

Economically, energy costs for all the residential, commercial, industrial, municipal, and transportation uses in Norwich for 1990 are estimated at over \$3.5 million per year, or about \$3,000 per household. It is calculated that these annual energy expenditures will rise to \$5.6 million for the town and \$4,800 per household by the year 2010 if no conservation and efficiency measures are introduced.¹ As long as we remain dependent on limited and dwindling nonrenewable fuel sources for energy, and as long as we continue to consume more and more energy, the costs of that use will grow to play an even larger role in the future.

Norwich relies heavily on fuels imported from outside our region; therefore, most of the money spent on energy is exported from our local economy and does not return to create jobs or buy goods locally. In addition, foreign fuel sources are unstable and subject to huge price swings and supply shortages beyond our control.

The town's energy future is inextricably linked with energy policies and economic forces at the state, federal, and international levels. While it is recognized that Norwich is limited in its ability to affect a national energy policy, we believe that town government does have significant influence. The town is the unit of government closest to the citizens, and is therefore most accessible to the participation of every individual.

¹These figures are based in part on energy consumption information for the town of Norwich from Green Mountain Power Corporation, local fuel oil and propane suppliers, and in part from Vermont statewide energy consumption data from the *Vermont Comprehensive Energy Plan, 1991*, Department of Public Service, 120 State Street, Montpelier, VT 05602, 802/828-2811.

NORWICH TOWN PLAN

Participation is the heart of the democratic process and, by adopting and implementing this Energy Resource Conservation Plan, Norwich makes a public policy statement on energy issues and acknowledges the importance of energy planning in the overall development of the community and the country.

Norwich views the implementation of this Energy Resource Conservation Plan as the initial step in the development of a sustainable energy future. Our long-term vision is to become a model of sustainable energy practices, by: reducing our energy use through utilization of energy-efficient end-systems; achieving the maximum development of local renewable resources that is economically feasible; and thoroughly evaluating and modifying, wherever feasible, our patterns of energy use, settlements, transportation, and industry to minimize environmental impacts. By implementing these goals, we expect to reap long-term economic, environmental, and quality-of-life benefits.

Since our air and water quality as well as the quality of life in Norwich are affected by our energy use, we must take responsibility for the environmental effects of our energy use, in consideration of generations yet to come. Therefore, the Town of Norwich resolves to take action that will create a sustainable energy future; one that minimizes environmental impact, supports our local economy, and emphasizes energy conservation, efficiency, and the increased use of local and regional renewable energy sources.

ANNUAL NORWICH ENERGY CONSUMPTION

Tables 10-1 and 10-2 present an estimate of Norwich' s energy consumption now and in the future. Table 10-1 provides figures for the year 1990, from information provided by Green Mountain Power Corporation, local fuel oil and propane distributors, and the Treasurer of the Dresden School District. Coal, wood, solar, and automotive fuel consumption (gasoline and diesel) was estimated from the *Vermont Comprehensive Energy Plan, 1991*. Table 10-2 provides an estimate of how the town' s energy use will increase if present use patterns continue. These figures assume that energy consumption in Norwich will rise at the same rate as that of Vermont as a whole, estimated from the *Vermont Comprehensive Energy Plan, 1991*.

Table 10-1. Summary of Norwich' s Energy Use (Municipal, Residential, Commercial), Year 1990

TYPE	UNIT	CONSUMPTION	TOTAL COST	\$/Unit	\$/MBTU
Electric	kWh	15,400,000	\$1,165,842.	\$0.076	\$22.18
Heat Oil	Gallons	466,473	\$382,376.	\$0.82	\$5.91
LP Gas	Gallons	310,387	\$337,787.	\$1.09	\$11.92
Coal	Tons	51	\$4,511.	\$88.00	\$3.46
Wood	Cords	1829	\$146,341.	\$80.00	\$3.96
Solar	MBTU	319	\$1,753.	\$9.20	\$9.20
Gasoline	Gallons	941,356	\$1,082,559.	\$1.15	\$9.20
Diesel	Gallons	344,630	\$396,325.	\$1.15	\$8.77
Total			\$3,517,495.		

Total 1990 energy consumption/number of year-round households in Norwich: \$2,963.35

Table 10-2. Norwich' s Projected Energy Use (Municipal, Residential, Commercial), Year 2010

TYPE	UNIT	CONSUMPTION	TOTAL COST	\$/Unit	\$/MBTU
Electric	kWh	22,400,000	\$1,633,111.	\$0.073	\$21.39
Heat Oil	Gallons	628,735	\$606,559.	\$0.965	\$6.96
LP Gas	Gallons	561,285	\$685,122.	\$1.22	\$13.36
Coal	Tons	105	\$8,946.	\$85.50	\$3.37
Wood	Cords	1748	\$130,481.	\$74.66	\$3.70
Solar	MBTU	850	\$4,888.	\$5.75	\$5.75
Gasoline	Gallons	1,444,773	\$1,955,412.	\$1.35	\$10.83
Diesel	Gallons	493,720	\$688,219.	\$1.35	\$10.32
Totals			\$5,692,738.		

Projected 2010 energy consumption/number of year-round households in Norwich: \$4,795.90.

NORWICH TOWN PLAN

The information in the tables is arranged as follows. The third, fourth, and fifth columns contain figures for consumption (in familiar units, e.g., gallons), total cost, and cost per unit (e.g., \$ per gallon). The last column shows that the cost of energy varies enormously depending on its source. To make this comparison, the familiar units for each energy source (e.g., gallons of heating oil) must be converted to the same energy unit, the MBTU (a million British Thermal Units). 1 British Thermal Unit is the energy needed to heat a pint of water by 1°F. For example, to heat 10 gallons of water from 50° to 110°F (to take a shower) would cost about \$.14 when done electrically, but only \$.02 if done with coal.

Studies and field experience in New Hampshire and Vermont predict 20% to 30% cost and energy savings through energy conservation and efficiency programs. The potential savings for the Town of Norwich, with a current annual energy bill of about \$3.5 million, would be between \$700,000 and \$1,050,000 per year if the programs in this plan are enacted.

GOALS, OBJECTIVES, AND PROGRAMS

The following represents a broad range of goals, objectives, and programs which, if implemented, would save Norwich money, conserve energy, protect the environment, produce local jobs, and provide a secure, economical, and sustainable energy supply for the town.

Goals of the Norwich Energy Plan

1. Save money by reducing the overall energy consumption within the town through conservation and efficiency, thereby decreasing the adverse environmental impacts associated with energy consumption.
2. Promote the development of local renewable resources as a replacement for imported nonrenewable resources.
3. Ensure that energy supplies will be reliable, affordable, and environmentally sound.
4. Increase public awareness of energy issues and build public support for energy efficiency and sustainable energy policies.

The Town as Energy Consumer

Objectives

1. Reduce energy consumption in all town buildings and operations.
2. Investigate and consider cost-effective energy conservation and efficiency

measures for use in all town buildings and operations.

3. Encourage the development and use of local renewable energy resources for all town buildings and operations.

Programs

The town should consider:

1. Conducting complete energy audits of all town buildings to:
 - a. identify areas of energy waste and areas of potential savings,
 - b. determine whether the end-uses of energy are properly matched with the types of energy sources used,
 - c. recommend cost-effective energy conservation and efficiency measures and modifications that will make use of renewable energy,
 - d. prioritize these modifications and incorporate them into the Town's Capital Budget, and
 - e. implement programs as prioritized by the previous steps.
2. Constructing all new buildings according to standards of energy efficiency at least equivalent to Energy Rated Homes of Vermont, 4-star level, or other state energy code where it can be demonstrated to be cost-effective.
3. Developing and implementing a program of upgrading to, and maintaining, energy-efficient and nonpolluting exterior lighting.
4. Using life-cycle cost planning² in evaluating all decisions concerning the purchase by the town of any equipment, vehicle, or other item requiring energy consumption.
5. Engaging in long-range planning for the use and acquisition of sustainable energy.

Residential, Commercial, and Industrial Buildings & Operations

Objectives

1. Encourage and support public energy education and awareness programs.
2. Encourage and support cost-effective energy conservation and efficiency measures for use in the town's residential, commercial, and industrial sectors.
3. Encourage and support the development and use of local renewable energy resources for the town's residential, commercial, and industrial sectors wherever economically feasible.

²Life-cycle cost planning incorporates operation and replacement costs as well as purchase price into the decision-making process. The formula for figuring life-cycle cost is: $LCC = \text{capital cost} + \text{maintenance cost} + \text{energy cost} + \text{replacement cost} - \text{salvage value}$.

NORWICH TOWN PLAN

Programs

The town should consider:

1. Providing information (possibly through the town library or an energy committee newsletter) on conservation and efficiency; efficient transportation; local renewable resources; related town, state, and federal energy programs; and available funding and financing for these programs.
2. Providing information on local and regional funding for residential programs to provide an energy audit and cost-effective weatherization services for all existing homes, with special emphasis on low-income housing.
3. Adopting recommended efficiency standards for new construction and retrofits which:
 - a. specify insulation, lighting, and appliance performance levels,
 - b. meet or exceed the Energy Rated Homes of Vermont 4-star code levels, and
 - c. limit electric use to those applications where it functions most efficiently, such as lighting, operating motors, and in certain industrial processes, and discourage the use of electric space- and hot-water heaters.
4. Encouraging the town's people and developers to use local and/or renewable resources on a sustainable basis.
5. Encouraging landlords to bring apartment buildings up to town standards for efficiency.

Transportation

Objectives

1. Promote cost-effective energy efficiency in future transportation planning.
2. Increase the efficiency of all town vehicles.
3. Educate the public about energy-efficient transportation.
4. Coordinate land-use and transportation planning that promote energy-efficient transportation.
5. Promote and implement strategies to encourage ride-sharing, public transit, bicycling, and walking.

Programs

The town should consider:

1. Investigating the use of alternative fuels in town vehicles (for example, ethanol made from wood will be available in a very few years) and other technological advances as they are developed.
2. Incorporating fuel economy standards into the town's Capital Improvement Program for use when replacing old town vehicles.
3. Analyzing the routes and travel of all town vehicles in order to recommend

- changes that will reduce transportation costs.
4. Through education programs, encouraging the use of:
 - a. existing public transportation and school bus routes,
 - b. state car-pooling and van-pooling programs, and
 - c. other transportation alternatives.
 5. Promoting the development and use of a system of trails, greenways, sidewalks, bicycle paths, and commuter parking lots as viable transportation components.
 6. Encouraging the installation of bicycle parking racks at major activity areas such as schools, recreation facilities, shopping centers, major places of employment, and mass transportation facilities.
 7. Providing shelters, where needed, for pedestrians and bicyclists at bus stops and ride-share pickup locations.
 8. Including bicycle paths as a component of the town's Capital Improvement Program and pursuing Federal and State funding for their construction.
 9. Bicycle paths, pedestrian walkways, and mass transportation access in the review of all proposals for commercial development and new town recreational facilities.
 10. Adopting zoning regulations that support development of mixed-use growth centers containing daily services to residences, thereby reducing transportation needs.
 11. Transportation efficiency issues and bicycle use when making road expansion decisions.
 12. Encouraging the schools to:
 - a. teach and promote cycling in the schools as a viable transportation alternative,
 - b. teach the true costs of various energy options, including car ownership, and
 - c. teach energy-efficient driving techniques in driver' s education.

Land Use

Objectives

1. Encourage and support settlement patterns and densities that reduce travel requirements to work, services, shopping, and recreation.
2. Adopt land use and zoning ordinances that encourage energy conservation and efficiency and the development of local renewable sources of energy.

Programs

The town should consider:

NORWICH TOWN PLAN

1. Encouraging outlying village centers (growth centers) to promote land use that would create or lead to energy-efficient development patterns.
2. Encouraging the use of energy conservation measures, such as:
 - a. vegetation as winter wind buffers and summer shading,
 - b. building development on southern slopes, or oriented to the south through lot layout, in order to take advantage of natural light and heat,
 - c. protection of solar access for existing buildings from shadows cast by new structures, and
 - e. building development in areas sheltered from the wind.
3. Identifying and protecting potential renewable energy resources.
4. Encouraging agricultural activities and seasonal farm stands so that local produce can be marketed locally.
5. Allowing appropriate home occupations in order to reduce commuter transportation.

Renewable Energy Resources

Objectives

1. Protect the town' s renewable energy resources.
2. Promote the cost-effective development of the town' s renewable energy resources.
3. Encourage use of locally produced renewable energy sources instead of imported non-renewable energy supplies.
4. Develop a system to allow for tax credits for energy efficiency or renewable energy investments and improvements.

Wood Energy Programs

The town should consider:

1. Promoting state and/or local tax abatement programs for stimulating sustainable fuel-wood production, and for improving the management of forests.
2. Protecting designated productive forest lands from development by working with land trusts and owners to acquire *conservation easements* to protect forest lands and/or by offering tax stabilization agreements to landowners who agree to manage their forests for fuel-wood, other wood resources, recreational uses, and wildlife habitat in a sustainable manner.
3. Managing town forest land, where possible, to provide fuel-wood and other wood products, recreational uses, and wildlife habitat, for the benefit of the town and its residents in a sustainable manner.
4. Establishing a policy of maintaining roads to productive forest land in a condition adequate to transport forest products but to discourage other vehicular travel.

5. Requiring that all wood-burning installations meet all applicable National Fire Protection Association (code # 211) safety requirements and Federal EPA emissions standards.
6. Studying the feasibility of converting municipal buildings and schools to wood heat and hot water.
7. Providing information to encourage the use of local wood products and resources.

Solar Energy Programs

The town should consider:

1. Recommending construction design standards and siting requirements that encourage solar heating and lighting in all new buildings.
2. Promoting a campaign to educate builders and architects on solar technologies, such as passive solar heating and natural lighting.
3. Requiring that cost-effective solar designs and techniques be incorporated into all new publicly funded structures erected in the town.

Wind and Hydroelectric Energy Programs

The town should consider:

1. Providing information to residents about existing and potential wind and hydro-powered generating sites, procedures for developing wind power and hydroelectric power, and available wind and hydro-powered generating systems.

IMPLEMENTATION OF PROGRAMS

The town should consider forming an energy committee responsible for submitting recommendations on the following items to the Selectboard for board approval:

1. *Implementing program for Energy Plan* – The energy committee, in conjunction with the other town boards and commissions, will develop an implementation program that will assign responsibility for all actions called for in the Energy Resource Conservation Plan, and will specify a time period for completion of each.
2. *Ensuring compliance with the Plan* – The energy committee would review decisions and actions and advise the Selectboard as to whether these decisions and actions are in compliance with the guidelines and regulations set forth in the Energy Resource Conservation Plan.
3. *Organizing energy education programs in town* – The energy committee will develop or obtain and disseminate energy education materials and programs for town employees, residents, businesses, and schools.
4. *Analyzing the effectiveness of programs* – The energy committee will conduct an annual review and analysis of program implementation and submit a report of its findings to the town Selectboard and make it available to the town's people.

Chapter 11

REGIONAL PLANNING

RELATIONSHIP OF NORWICH'S PLANNING ACTIVITIES TO NEIGHBORING TOWNS

INTRODUCTION

The Norwich Town Plan expresses a vision by the residents of Norwich for the future of their town. Although many of the issues are within the control of the town through its town meeting, elected and appointed officials, and private groups, others are dependent on outside regional events and forces and may need regional solutions. The town has participated in regional decision-making whenever possible. Some areas of regional cooperation have included solid waste disposal, mutual aid fire protection, and transportation.

Norwich is a member of the Upper Valley Lake Sunapee Regional Planning Commission which includes four Vermont towns (Hartford, Hartland, Thetford, and Norwich) and 27 New Hampshire towns. The Regional Planning Commission creates a Regional Plan and coordinates transportation planning in addition to offering planning support services to the towns. Sharon and Strafford are members of the Two-Rivers Ottauquechee Regional Planning Commission.

Other regional planning groups with which Norwich participates include the Greater Upper Valley Solid Waste Management District and the Joint Connecticut River Commissions.

NEIGHBORING TOWNS

Hartford has a Municipal Plan adopted in July of 1993. The recommended land uses are influenced by historic settlement patterns with denser development directed towards the existing villages. The land in Hartford near the boundary with Norwich is either rural residential or undeveloped with the exception of the land near U.S. Route 5 which is in commercial/industrial use. On the east side of Route 5 the land in Norwich is zoned commercial/industrial, but on the west side of Route 5 the Norwich land is zoned rural residential. There are several Norwich roads along the Hartford boundary which are presently inaccessible from other parts of Norwich without travelling through Hartford.

NORWICH TOWN PLAN

Sharon has a proposed Municipal Plan that is in the final stages of being adopted. Sharon does not have zoning regulations, but it does have subdivision regulations. Land near the Norwich boundary will continue to be rural residential or forest reserve under the proposed plan.

Thetford has a Municipal Plan which was adopted in 1992 and has had zoning and subdivision regulations since 1974. With the exception of a small village residential zone in Union Village, the land abutting Norwich is zoned rural residential. Thetford's growth centers are East Thetford and Post Mills.

Strafford is a rural town (population 902) which experienced 23% growth in the 1980's and relatively slow growth recently. The town has had subdivision regulations since 1970 and zoning regulations since 1978. Strafford's Municipal Plan expired in 1993, but a new one has been presented for adoption. The new plan calls for growth management and preservation of open space.

Hanover, with a 1990 population of 9,212, has experienced very slow growth in recent years. Zoning is restrictive and the major employer, Dartmouth College, will most likely continue to grow at a slow rate. Hanover is a source of employment, educational facilities, cultural activities, retail stores, and professional services for Norwich residents, while Norwich is home for many of those employed by Hanover businesses and institutions.

SUMMARY

There are no significant conflicts between this plan and municipal plans either adopted or proposed in neighboring towns. No major growth areas planned in neighboring towns will dramatically increase traffic on the Norwich roads, although, as growth occurs in Sharon, Strafford, and Thetford, there will gradually be more traffic on our roads.

Chapter 12

IMPLEMENTATION PLAN

INTRODUCTION

The Norwich Town Plan is a guide which does not make decisions or create mandates. The long-term vision of the town, as reflected in the goals, objectives, and policies of this plan, will be realized by implementing recommended actions listed at the end of each chapter. As conditions change, the implementation process must remain flexible.

Existing zoning and subdivision regulations in Norwich may need to be revised to reflect the plan's objectives and policies. Other regulations governing roads, traffic, sewage disposal, health, etc., may also need to be revised.

Non-regulatory implementation programs may include capital budgeting, public facilities planning, and natural resource inventories. Programs combining public and private activity may include housing, land conservation, historic preservation, and economic development.

Decisions will be made on the priorities of recommended actions; some programs may demand immediate attention, others may not. Some changes to regulations should and can be made immediately, others may need more research and discussion within the community.

Although the Planning Commission, Conservation Commission, ad hoc committees, and other public and private groups including the Fire District Prudential Committee may take an active role in the implementation of the Town Plan by drafting changes in regulations or creating specific programs, decisions involving town funds or changing regulations will be made by the voters of Norwich, either directly at a Town Meeting vote or by their elected representatives on the Selectboard or School Board.

PROPOSED ACTIONS

Upon adoption of this plan by the town, the Planning Commission will immediately assemble a list of proposed actions based on the recommended actions in the plan. These proposed action plans may reflect activities already in progress, the urgent

NORWICH TOWN PLAN DRAFT

need of specific actions, and the reality of time and financial constraints. Priorities and time-lines will be assigned in consultation with the boards and commissions responsible for the specific activities.

The Planning Commission may also consider the creation of ad hoc committees to address specific issues. These committees should be given a specific charge and a realistic time frame to complete it. Any financial support for these committees will need to be approved by the Selectboard.

Examples of potential activities:

PLANNING COMMISSION

- Propose immediate minor changes to Zoning and Subdivision Regulations.
- Develop proposals for major changes to Zoning and Subdivision Regulations requiring research and community input.
- Propose a Capital Improvement Program (in conjunction with Selectboard and Finance Committee).
- Evaluate the town transportation network for current and future needs in conjunction with the Road Committee.

CONSERVATION COMMISSION

- Continue inventory of natural resources.
- Propose priorities of significant natural resources which may need to be protected thorough regulations (in conjunction with Planning Commission).
- Work with public and private groups to conserve land with significant natural resources, agricultural potential, and open space land.

OTHER POSSIBLE COMMITTEES

- Recreational facilities - work with the Recreation Council to identify and acquire additional playing fields and facilities.
- Trails Committee - Coordinate the location, relocation and maintenance of trails.
- Energy Committee - Review energy conservation efforts.

Appendix

MAPS

GEOGRAPHIC INFORMATION SYSTEM (GIS)

The Town of Norwich has created a Geographic Information System using computer based spatial data (maps) directly linked to databases. Detailed layers (scale of 1:5,000) include parcels, roads, land cover, zoning districts, and surface waters. Less accurate layers (scale of 1:20,000 or greater) include soils, contours, wetlands regulated by the state, and potential deeryard areas. The GIS contains visually represented information similar to a conventional map along with unlimited data that can be accessed with a computer.

Maps using any combination of layers may be viewed on a computer screen, or printed on conventional printers or on large color plotters. The Norwich GIS is currently used by the Planning and Zoning Office and the Listers. Maps produced by the GIS are used by all departments including Police, Fire, and Highway. The town GIS is based on a standard adopted by the state so that information developed by state and regional agencies can be used by the towns.

The attached sample maps represent some combinations of layers. Due to their reduction to a letter size page, these samples are difficult to read. Full size maps may be viewed in the Planning Office. Detailed roads maps are available at the Town Clerk's office.