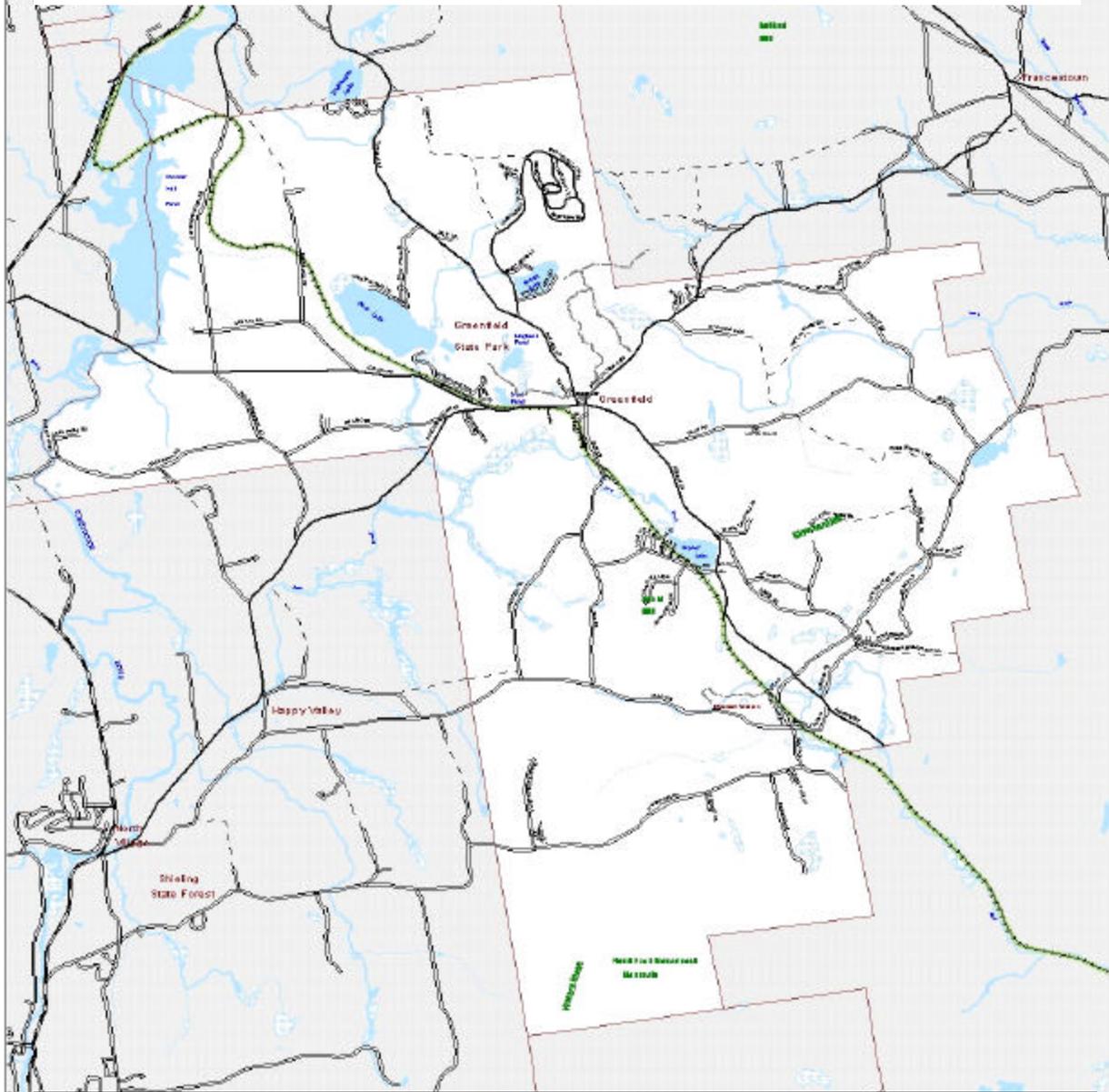


# 2003 Master Plan Update



Greenfield Planning Board on June 2, 2003



Prepared by the  
Southwest Region Planning Commission

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## INTRODUCTION

New Hampshire state law mandates planning boards to “*prepare and amend from time to time a master plan to guide the development of the municipality.*”<sup>1</sup> The sole purpose of the master plan is to aid the planning board in the performance of its duties. The duties of the planning board are varied, but the only duty specifically required<sup>2</sup> is the maintenance of the town’s master plan.

The statute goes on to say that the master plan may include consideration of any areas outside of the town which, in the judgement of the planning board, bear a relation to or have an impact on the planning of the town.

### I. WHAT IS A MASTER PLAN?

The master plan may be comprised of a collection of reports, statements, land use and development proposals, with accompanying maps, diagrams, charts and other descriptive matter that shows as fully as is possible and practical the planning board’s recommendations for the desirable development of the town. The master plan shall include, at a minimum, the following required sections<sup>3</sup> :

- (a) “A vision section that serves to direct the other sections of the plan. This section shall contain a set of statements which articulate the desires of the citizens affected by the master plan, not only for their locality but for the region and the whole state. It shall contain a set of guiding principles and priorities to implement that vision.”
- (a) “A land use section upon which all other sections shall be based. This section shall translate the vision statements into physical terms. Based on a study of population, economic activity, and natural, historic, and cultural resources, it shall show existing conditions and the proposed location, extent, and intensity of future land use.”

The master plan may also include the following sections (RSA 674:2.III):

- (a) Transportation Section;
- (b) Community facilities section;
- (c) Economic development section;
- (d) Natural resources section;
- (e) Natural hazards section;
- (f) Recreation section;
- (g) Utility and public service section;
- (h) Cultural and historic resources section;
- (i) Regional concern section;
- (j) Neighborhood plan section;
- (k) Community design section;
- (l) Housing section;

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<sup>1</sup>RSA 674:1.

<sup>2</sup>Other planning board duties, such as subdivision and site plan review, etc., are actually allowed only if the voters at town meeting authorize the planning board to take on these responsibilities.

<sup>3</sup>RSA 674:2.

(m) Implementation section.

Where appropriate, the Plan may contain appendices or separate reports that contain the underlying scientific and statistical data that support the various elements of the Plan.

## **II. WHAT WILL THE MASTER PLAN ACCOMPLISH?**

The Master Plan provides a framework for the Planning Board in particular and the town as a whole to use in shaping the future over a period of years (5-10 years is recommended for master plan updates<sup>4</sup>). The Planning Board should be able to refer to the town's Master Plan whenever a development proposal comes before it, to determine whether development that is being proposed is consistent with the Master Plan.

Most importantly, in order for any municipality in the State of New Hampshire to adopt a zoning ordinance, a Planning Board must have adopted, at a minimum, a general statement of goals and objectives and the land use section of a master plan. In Greenfield's case the Town does have a zoning ordinance. And, the current Master Plan was completed in 1985; in the ensuing 17 years, many changes have occurred in town. Therefore, it is incumbent on the Planning Board to bring the Master Plan up to date with current conditions.

This Master Plan represents - to the best ability of the Planning Board to determine - the wishes of the residents of Greenfield regarding the present and future vision of the town for the next 5-10 years. Throughout this process, the Planning Board has informed the public and solicited comment in order to reach the concluding recommendations.

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<sup>4</sup>RSA 674:3.II.

# TRAFFIC AND TRANSPORTATION ANALYSIS

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# TRAFFIC AND TRANSPORTATION

## I. INTRODUCTION

The state statute that deals with Master Plans, RSA 674:2, VI, calls for a transportation section that shows “. . . *the location and types of facilities for all modes of transportation required for the efficient movement of people and goods into, about, and through the community.*” Good transportation planning is important because of its capital-intensive nature: streets and highways typically represent the most significant public investment in a town’s infrastructure. Outside of school taxes, the highway budget is usually the largest percentage of a town’s operating costs.

The primary goal of this section, then, is to identify current issues and/or needs crucial to orderly development and the safe and efficient movement of traffic. A corollary purpose is to assist the Town of Greenfield in fully participating in all levels of transportation planning. Transportation infrastructure is heavily dependent on public funds, and the NH Department of Transportation (DOT) sets the priorities for spending through the development of a statewide Transportation Plan and Transportation Improvement Program. Both of these are required under federal legislation that prescribes the disbursements to states; in order for New Hampshire to qualify for its full allocation of funds, the NH DOT must comply with federal planning requirements.

To accomplish this task, the NH DOT requires each of the nine regional planning commissions in the state to develop a regional transportation plan that describes existing state road conditions within its region, identifies problems and concerns, declares goals and objectives for the regional network, and makes specific recommendations for improvements or new construction. Any local concerns relative to state-maintained roads must be addressed through the Regional Transportation Plan in order to be included in the State Plan. This section, therefore, takes the regional issues into account in the process of developing local goals for a safe and efficient transportation network.

## II. ROAD CLASSIFICATIONS

### A. STATE CLASSIFICATIONS

Public roads are defined by DOT by the type of service they provide and/or by the funding that is available to build, maintain, and repair them. New Hampshire statute RSA 229:5 specifies the following roads within the state system:

- ♦ Class I: Trunk Line Highways. These belong to the primary state highway system, and the state assumes full control and responsibility for construction and maintenance.
- ♦ Class II: State Aid Highways. These belong to the secondary state highway system. The NH DOT assumes full control and responsibility for construction and maintenance.

- ◆ Class III: Recreational Roads. These consist of all roads leading to and within state reservations designated by the NH Legislature. The NH DOT assumes full control and responsibility for construction and maintenance.
- ◆ Class III-a: Boating Access Roads. These consist of roads that lead to public waters from any existing highway. The NH DOT assumes full control and responsibility for these roads.
- ◆ Class IV: Town and City Streets. These consist of all sections of road that fall within urban compact areas of towns and cities with populations greater than 7,500. The municipality assumes full control and responsibility for construction and maintenance.
- ◆ Class V: Rural Highways. These consist of all other maintained roads that are not in the state system. They are town-owned and maintained.
- ◆ Class VI: Unmaintained Highways. These are all other existing public roads that are not maintained by the town and have not been for at least five years. The road may be closed subject to gates and bars, but it continues as a public roadway.<sup>5</sup>

Of these seven state road classifications, Greenfield roads fall into three as follows: Route 31(Sawmill Road), Forest Road and Route 136 are Class II state highways; all other roads in town are Class V and Class VI town roads. These are illustrated on the accompanying map, and the number of miles comprised by each classification is described in Table #1 following.

**TABLE #1:  
ROAD MILEAGE BY STATE CLASSIFICATION**

Class:	Mileage:
Class II	14
Class V:	
Paved	13
Unpaved	27
Class VI	7
<b>Total Mileage</b>	<b>61</b>

SOURCES: NH DOT; GREENFIELD HIGHWAY DEPARTMENT

**B. FUNCTIONAL CLASSIFICATION**

A functional classification system identifies roads by the type of service provided and by the role of each highway within the state system, based on standards developed by the US DOT. The purpose of utilizing such a system is to correlate the land planning and traffic

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<sup>5</sup> The Class VI designation is frequently applied to roads that have been abandoned or discontinued, which often leads to confusion as to the ownership of the road. If a vote was taken at Town Meeting to formally discontinue a road (or “throw it up”), that road is not longer public – it then belongs to the abutting landowners. If it is closed subject to gates and bars, it means that the landowner may enclose premises (historically this was done to contain cattle), but may not lock out the public, who still has the right to pass.

planning functions of the Master Plan. Recognition of the principal function that any road is intended to serve can reduce potential conflicts between land use activities and traffic movements. For rural areas such as Greenfield, the following categories are identified by the US DOT:

♦ **Other Principal Arterial/Controlled Access.**

These are Interstates and some primary state routes. They are designed to move large volumes of truck and car traffic through and between population centers without disturbing local traffic and land uses. Controlled Access is a means of minimizing the number of curb cuts, thereby controlling the amount of turning movements along the roadway.

*Within Greenfield there are no Other Principal Arterials. Within the Southwest Region Routes 9, 12 south of Keene and 101 are Other Principal Arterials.*

♦ **Arterial System – Major and Minor.**

These are the streets and highways that connect communities and regions. They are designed to move large volumes of traffic to and from large traffic generators without disturbing local traffic and land uses. Minor arterials distribute traffic to smaller geographic areas, and place more emphasis on providing land access than the major arterials.

*Within Greenfield there are no Major or Minor Arterials. Within the Southwest Region Routes 202, 10 south of Keene, and 12 north of Keene are Minor Arterials.*

♦ **Collector System – Major and Minor.**

Major Collectors are designed to move medium traffic volumes at low speeds between or within communities. They differ from the Arterial system in that collector streets go through residential neighborhoods, distributing traffic from the arterials through the area to its ultimate destination. Minor Collectors provide alternate routes to Major Collectors.

*Within Greenfield Route 31 (Sawmill Road), Forest Road, and Route 136 are classified as Major Collectors. There are no Minor Collectors in Greenfield.*

♦ **The Local Street System.**

This consists of all streets not classified in one of the other higher systems. Its primary function is to provide direct access to abutting properties and to other roads and highways. It offers the lowest level of mobility.

C. **SCENIC ROADS**

In addition to the state and federal classifications, RSA 231:157 allows towns, by a vote at Town Meeting, to designate any road other than a Class I or II highway as a Scenic Road. The effect of this designation is that, except in emergency situations, there shall be no tree cutting or alteration of stone walls within the right-of-way without approval of the

Planning Board, after a duly-noticed public hearing. The law does not affect the rights of individual property owners; nor does it affect land uses as permitted by local zoning. The statute also authorizes towns to adopt provisions dealing with Scenic Roads that are different from, or in addition to, those that are spelled out in the law. When this law was enacted in 1972, Greenfield residents voted to classify all town roads, or sections thereof, that were unpaved at the time as scenic; they are as follows:

1. Swamp Road from Route 136 to Old Bennington Road.
2. Cavender Road from Route 136 to the Old Bennington Road.
3. Colonial Drive from Riverbend Road to the end.
4. Riverbend Road from Cavender Road to the end.
5. Old Bennington Road from Forest Road to the Bennington Town Line.
6. Old County Road from Old Bennington Road to Forest Road.
7. Muzzy Hill Road from Old County Road to the end.
8. Sunset Lake Road from Crotched Mountain Road to the end.
9. Pine Ridge Road from Route 136 to the end.
10. S. Francestown Road from Route 136 to Dodge Road.
11. Dodge Road from S. Francestown Road to East Road.
12. Blanchard Hill Road from New Boston Road to the end.
13. Thomas Road from pavement change to the end.
14. Coach Road from Thomas Road to the end.
15. Old Lyndeborough Road from New Boston Road to the end.
16. Holden Road from Old Lyndeborough Road to Forest Road.
17. Miner Road from New Boston Road to Forest Road.
18. Woodland Hill Road from Miner Road to the end.
19. Etna Drive from Miner Road to Fletcher Farm Road.
20. Fletcher Farm Road from the end to Miner Road.
21. School House Road from Gulf Road to the end.
22. Gulf Road from Russell Station Road to the end of the Class V section.
23. Lake View Circle from Zephyr Lake Road to Zephyr Lake Road.
24. Slip Road from Gulf Road to pavement change.
25. Cornwell Road from Slip Road to Gulf Road.
26. Gulf Road from Peterborough Town Line to Slip Road.

The total mileage of these sections of road amounts to 19.55 miles, of the approximately 40 miles of town-owned roads.

### III. TRAFFIC PATTERNS

#### A. TRAFFIC COUNTS

Information on traffic volume is collected by the NH DOT through the placement of traffic counting devices at various locations around the state. Some of these are permanently installed under the roadway and provide figures based on a full year count, while others are set out on a rotating basis for varying lengths of time – generally during the months of May to October for a seven-day period. Permanent counters are used only on state roads, while the temporary counters will be used on both state and local roads.

Table #2 following presents averaged annual daily traffic (AADT) counts for six counters – three of them in Greenfield, and three on the border with neighboring towns (see *Town of Greenfield, NH Traffic Counter Locations* map on the following page). The data are not consistent for each counter, so it is not possible to compare all counters over the same time period; however, more counts have been taken at the three Greenfield locations than on the town lines.

The location that shows the greatest amount of traffic in 1999 – the most recent year for which counts are available - is #185053, which is on Route 136 in the center of Town, just west of the intersection with Route 31. This counter has consistently registered the highest AADT's since 1989. It is important to bear in mind that these are not permanent counters, therefore any unique event during the week the counter is set out could cause the kind of reading that appears inconsistent.

**TABLE #2:  
AVERAGED ANNUAL DAILY TRAFFIC COUNTS, 1981 - 1999**

Year	185051	185053	185050	201052	159050	201056
	Greenfield, NH 136 @ Peterborough TL	Greenfield, Forest Rd. West of NH 31	Greenfield, NH 31 @ Bennington TL	Hancock, Forest Rd. @ Greenfield TL	Francestown, NH 136 @ Greenfield TL	Hancock, Cavender Rd. @ Greenfield TL
1981	1700		800	600		
1982						
1983	1600			500		
1984						
1985	1400		1000	600		
1986						
1987	1500		1100	700		
1988			1100			
1989	1900	2200	1200	800		
1990	2000	2700		700		
1991	2000		1300	700		
1992			1300			

1993		2100	1200	730		30
1994					1400	
1995	2100	3400	1300	850	1200	
1996		3200				
1997	2200		1400		1300	
1998	1900		1300	770	1100	
1999	2200	3400	1500	910		

SOURCES: NH DOT; SOUTHWEST REGION PLANNING COMMISSION

**B. TRAFFIC GENERATORS**

Most of Greenfield’s traffic is residential, since that is the primary land use in town. There is of course some amount of truck/ commercial traffic that services the businesses, as well as travel through Greenfield to and from neighboring towns; Route 31, in fact, carries a significant amount of through truck traffic.

Aside from the residential and local business traffic, Greenfield has several large traffic generators, the single largest being Crotched Mountain Rehabilitation Center, in the northern part of town. The Center employs nearly 600 people working three shifts, and houses over 90 patients; in addition, there are 24 day students and an out-patient clinic. The access to the Center is off of Route 31, but traffic to and from the facility travels over all three Class II highways (Routes 31& 136, and Forest Road).

Greenfield is also home to a State Park, with 253 sites, and Brantwood Summer Camp. The locations of these facilities are identified on the *Town of Greenfield, NH Community Facilities* map found in Chapter Three – Community Facilities. In addition to these existing camps, a proposal is before the Planning Board for a camp and conference center (Barbara C. Harris Camp & Conference Center), which would accommodate 144 children and 55 staff persons, with a possibility of expanding to 240 children and 90 staff persons. The proposal also includes a Conference Center, which presumably would accommodate visitors year-round.

Another, yet somewhat smaller traffic generator is the newly constructed elderly housing complex on Forest Road, which has 24 apartments for approximately 40 persons, some, but not all of whom have vehicles.

**C. COMMUTING PATTERNS**

The US Census collects information on commuting patterns of the labor force – that is, where people go to work from their town, and where people come from to work in a particular town. According to these 1990 Census figures, Greenfield has an estimated 677 workers; of these, 521 (77%) commute out of town to work. The number of all people who work in Greenfield, regardless of residence, is estimated to be 580; of these, 424 (73.1%) commute into Greenfield from somewhere else. Detailed 2000 Census data on commuting patterns will not be available until the summer of 2003. The table following illustrates where Greenfield residents go to work, and where nonresidents working in Greenfield come from.

**TABLE #3:  
COMMUTING PATTERNS**

COMMUTING OUT TO:	#	COMMUTING IN FROM:	#
Peterborough	155	Antrim	59
Milford	56	Peterborough	55
Nashua	49	Jaffrey	54
Amherst	23	Hillsborough	21
Merrimack	21	Manchester	21
Wilton	18	Keene	17
Jaffrey	15	Amherst	16
Manchester	14	Bennington	16
Massachusetts	25	Massachusetts	6
Other	10		

SOURCE: US CENSUS, 1990

As these figures in Table #3 illustrate, the largest percentage of Greenfield’s workers go to Peterborough – nearly 30% of all commuters, whereas those who commute in are more evenly divided between towns – Antrim, Peterborough and Jaffrey send almost equal numbers of workers. Without more detail, it would appear that Route 136 carries the greatest amount of commuter traffic each day - both in and out of town. Reference to the traffic count data seems to support this assumption – with the one-time dramatic jump in 1999 for the ADT on Route 31 at the Bennington Town Line.

#### **IV. ROAD NETWORK**

##### **A. SURFACE WIDTHS & CONDITIONS**

Roads in Greenfield are of varying widths and surface conditions. The wideness of a road is not necessarily related to the ownership – i.e., the state roads are not always wider than the town roads, although they are more likely to have wider shoulders.

The NH DOT has developed standards for road construction, published in April of 1995 and titled “Minimum Geometric & Structural Guides for Local Roads and Streets”. The specifications recommended for minimum width and materials are based on average daily traffic – in other words, the more traffic a road carries, the wider the traveled way and shoulders, the deeper the base and top coat, etc.

According to these standards, the minimum width for the least-traveled road should be 18 feet, plus a two-foot shoulder; this is for a road carrying no more than 50 vehicle trips per day. Most town roads do not meet this standard and, even with new construction, many

small towns will approve an 18-foot width for a Class V town road carrying more than 50 vehicle trips per day.

Road widths in Greenfield vary from 10 feet or less for certain Class V and Class VI roads to 25 feet. All of the state roads are between 16 and 25 feet wide, with Forest Road being the widest. The Class V roads fall into the 11-15 and 16-20-foot widths; only the Class VI (unmaintained) roads are less than 11 feet wide.

**B. BRIDGES**

Bridges present an ongoing maintenance and repair concern for all towns, oftentimes accounting for a large portion of local highway budgets. Bridges also present the potential for a number of safety hazards in instances where they are severely deteriorated or are significantly narrower than the road they serve. Bridges are rated by the DOT, using a system based on federal standards for type of construction, widths, surface conditions, ability to handle traffic volumes, etc. Greenfield has only two bridges, the locations of which are identified on the *Town of Greenfield, NH Transportation Infrastructure Functional Classification* map. The status of these bridges is presented below in Table #4.

**TABLE #4:  
STATUS OF BRIDGES**

Bridge ID Number	#151/089	#167/151
Location	School House Road over School Brook	Dodge Street over Handy Brook
Last Inspection Date	August 1996	August 1996
Federal Sufficiency Rating <sup>1</sup>	64.6	68.5
Owner	Town	Town
AADT/Year	230/1987	60/1987
Type of Bridge	Metal Pipe	Metal Pipe
Width	14 feet	17 feet
Length	14 feet	11 feet
Functional Class	Rural Local	Rural Local
Weight Restrictions	E2 <sup>2</sup>	E2 <sup>2</sup>
Year Built (or rebuilt)	1988	1986
<sup>1</sup> The functional sufficiency ratings noted in the table are based on certain criteria that have to do with traffic capacity and safety of the bridge approach, and with the integrity of the structural components and the bridge surface. Using a maximum sufficiency rating of 100 points, the DOT has determined that a rating of less than 60 points is indicative of a disproportionate share of deficiencies, and a rating of less than 40 points indicates a bridge in very poor or severely deteriorated condition.		
<sup>2</sup> Weight restrictions for certified vehicles. The NH DOT has taken the position that the towns are responsible for evaluating their own bridges, and until all bridges are evaluated, recommend that they are posted "E -2".		

SOURCE: NH DOT BRIDGE DESIGN, BRIDGE SUMMARY 2000

**C. ACCIDENT LOCATIONS**

The NH DOT collects data on accidents locations throughout the state. The most recent years for which this information is available for the Town of Greenfield is 1997 and 1998, in which two accidents each year were reported. The two accidents in 1998 occurred on Swamp road and Zephyr Lake Road and in both cases a tree was struck. None of the four incidents resulted in a fatality.

Discussion with the Greenfield Police Chief indicates that most of the accidents are the result of speed. There does not appear to be any particular pattern to accidents, nor are any roads necessarily more susceptible to accidents than others, with the slight exception of Miner Farm Road, which has a section with several "S" curves. The accident rate in Greenfield has actually declined, due to strict local enforcement. The Police Department has a part-time squad whose primary function is traffic patrol.

**D. PROBLEM AREAS**

In general, the roads in Greenfield appear to be in pretty good shape. Information provided by the Road Agent indicates that the Wapack Trailhead on Mountain Road can be problematic, due to the many parked vehicles of the hikers, which leaves no room for the town trucks to turn around.

Another area to be considered is Cavender Road, an unpaved town road, which now carries all the traffic from a 27-lot subdivision on the Hancock town line that once had access to Route 202 through Hancock. The bridge, however, is now closed and the only route available is Cavender Road. The Town of Greenfield would like to see the bridge repaired and reopened, but this could not happen without the cooperation of the Town of Hancock, since the boundary between the two towns lies in the Contoocook River.

Specific problems have to do with the needed replacement of 83 culverts throughout the town that are deficient for a variety of reasons. The Town is in the process of applying for the necessary wetland permits to begin this work, which should take two to three years.

**V. PUBLIC/ALTERNATIVE TRANSPORTATION MODES**

**A. PUBLIC TRANSPORTATION**

Public transportation plays a very small role in the overall service network. There are presently no bus routes that serve Greenfield. Community transportation for special needs populations is available from a number of social service organizations on an as-needed basis; some of these services are also open to the general public. For a complete description of the available services, please refer to the *Southwest Region Transportation Plan – 2001 Update*.

**B. BICYCLE/PEDESTRIAN TRAVEL**

The focus of this analysis has been on vehicular, private transportation. Alternative travel is limited in this region, although it has certainly seen resurgence over the last several

years. Most roads were designed and built with little or no consideration for anything but vehicles; pedestrians and bicyclists must share the road with cars and trucks. In recent years there has been an increase in both pedestrian and bicycle traffic, and with it a recognition of the potential dangers of mixing these activities with vehicular traffic. These issues can be partly addressed at the local level by designing new roads with attention to alternative traffic. With existing roads the problems are more difficult, since the Road Agent is dealing with a circumscribed width in most cases; warning signs and speed limits are the traditional techniques for ameliorating the conflicts, although not always effective.

Route 31 from the Village south and Forest Road from the Village west is designated as a state bicycle route. Roads designated as state routes can receive funding for pedestrian improvements if there is a reconstruction. All roads in the system are considered to be the best available roads for bicycling to major destinations. All share the road with motorized vehicles. Shoulders vary from wide to none.

**C. RAIL/TRAILS**

The Hillsboro Branch of the Wilton-Bennington state-owned railroad line traverses Greenfield southeast to northwest. This is an inactive rail freight line, but the tracks are still in place. There are no plans for conversion of this line to a recreational trail.

The closest rail/trail for Greenfield residents is an abandoned railroad line located just to the east of Antrim, easily accessible from Route 202 in Bennington. The line runs adjacent to the Contoocook River through Deering, to the paper mill in Bennington. For at least five years, this railroad bed has been actively maintained as a multi-use recreational trail. The NH Department of Resources and Economic Development is responsible for overseeing the trail management; however, the local snowmobile club and Conservation Commission of Deering have been taking care of regular maintenance.

The accompanying map illustrates the rail/trail system in Greenfield. The railroad bed is clearly indicated with the still-present tracks, making it of course not usable for alternative transportation purposes. There are only a few public trails: one in the area of Russell Station; one that runs from downtown east to the State Park; two that run almost parallel to one another from the Francestown Road north almost to Sunset Lake Road; and one that begins near Sunset Lake Road and ends in Francestown.

**D. SIDEWALKS**

Pedestrian mobility in the Village area has been a difficult issue, due to the lack of adequate walking paths, and the fact that the Village is at the confluence of three state highways. A plan is underway at this time that will provide for new sidewalks along Route 31 from the north side of Route 136 which will connect the Village with the new elderly housing complex, the new Greenfield Elementary School, Oak Park, and the State Park. This project has come about as a result of a PlanNH Charette that was held in Town in November of 1997. The planning exercise identified the need to formalize pedestrian and motor vehicle access within the Village and create a walkable distance to these locally-important locations. This project is currently in the design stage, with actual construction scheduled for Spring/Summer 2003.

## **VI. ROAD IMPROVEMENT PROGRAM**

### **A. STATE PROJECTS**

As part of the PlanNH Charette project mentioned above that will provide sidewalks in the Village; Sawmill Road, Slips Road, and Forest Road will also be reconstructed to correct a severe crown of the highway cross section, erratic elevation, broken pavement edges, and eroded gravel shoulders. This reconstruction will include renovation of the old closed drainage system. In addition to the road work, the project also includes the development of a formalized parking system on Main Street, clearly designated pedestrian access with granite curbing, and delineated crosswalks.

Another project that has been on the State Transportation Improvement Plan for many years is the relocation and upgrading of the railroad crossing on Route 136. Presumably the project has never been completed because the railroad ceased operating.

### **B. LOCAL PROJECTS**

The Highway Department has begun a program of improving all town roads at the rate of 6/10 of a mile every two years. The process, known as "reclamation" involves digging up the old pavement, recycling it and laying down the reconstituted pavement, which is much more expensive (approximately \$50,000 per mile) and time-consuming than simply paving over old pavement.

## **VII. TECHNIQUES FOR ADDRESSING TRANSPORTATION ISSUES**

### **A. PLANNING STRATEGIES**

#### **FOCUS DEVELOPMENT IN THE VILLAGE.**

Provide for mixed uses and higher densities in the Village rather than in the outlying parts of town.

#### **IDENTIFY APPROPRIATE LAND USES.**

Existing land uses can be monitored and the Zoning Ordinance consulted to ensure that development will be compatible with the road system. Applications for development must always be reviewed with the scale of proposal relative to the road network and abutting land uses in mind.

#### **PLAN FOR PEDESTRIAN AND BICYCLE CONNECTIONS.**

The Town can make sure that it is always at the table when the NH DOT is considering plans involving the state routes, and make every effort to see that all due consideration is given to the accommodation of non-motorized traffic.

**DEVELOP AND ADOPT A ROAD POLICY.**

The Planning Board, in conjunction with the Board of Selectmen, can develop a road policy that would guide development in town based on the status of existing roads and any future plans for roads. This can go far to ameliorate potential questions and problems when applications are submitted for the upgrading of a road, or for a building permit on a Class VI road.

**CAPITAL IMPROVEMENTS PROGRAM.**

A Capital Improvements Program (CIP) that sets forth the planned capital expenditures over a six year period can also help to guide road development. In conjunction with a Road Policy, the CIP can set the schedule as well as the degree and type of road improvements.

**SWRPC TRANSPORTATION ADVISORY COMMITTEE**

Participation in this Committee provides an opportunity for the Town to be involved in the development of the Region's 10-Year Highway Plan.

**B. REGULATORY STRATEGIES**

**ROAD STANDARDS**

Included in the Subdivision Regulations administered by the Planning Board are standards for road construction. These essentially mirror the DOT standards discussed above, which address such things as width of the traveled way, width of shoulders, type of materials to be used and depth of each level. The Board also has the option, through a waiver procedure, of accepting plans for new roads with modified standards: for example, approving a graveled road rather than a paved road for developments of low traffic impact.

**DRIVEWAY STANDARDS**

The Planning Board is allowed by state statute to adopt and administer regulations for the construction and permitting of driveways. The NH DOT regulates curb cuts on state roads; towns are allowed the same authority for town roads. A local driveway regulation, however, can cover all aspects of driveway construction for the entire length, not just the access area off of the road. Driveway standards can encourage safe and efficient transportation corridor management through provisions that:

- reduce the number of curb cuts along a road;
- separate curb cuts and intersections;
- align driveways either opposite one another or offset them by at least 125 feet for safe sight distance;
- relate driveway design such as width, length and curb radii, to travel speed and traffic volumes;

- require shared access and parking where appropriate; and
- prohibit parking that requires backing out onto the road.

**DEVELOPMENT OF BACKLOTS**

Backlot development is a zoning technique that allows the subdivision and/or development of lots that cannot meet the frontage requirement for the district. Allowing for this type of development gives towns the opportunity to set standards for the roads that serve these backlots, and require that the backlot share an access with the front lot, when appropriate, etc.

**SCENIC ROADS**

Greenfield already has town roads designated as Scenic. This designation, in and of itself, does not affect land use or traffic along the road, but it could serve as the basis for developing a Scenic Road Corridor, in which land use and traffic would be reviewed in concert with the objectives of the designation.

**ACCESS MANAGEMENT TECHNIQUES**

These techniques range from various driveway standards and requirements to the use of medians, signalization and signage.

**C. SUBDIVISION AND SITE PLAN CONSIDERATIONS**

During the subdivision or site plan review process the Planning Board has an opportunity to review all proposals based on the transportation issues identified in this section. Some of the pertinent issues include:

■ **VIEWING THE WHOLE PARCEL**

It is always important to step back from an individual plan and look at it in relation to the neighboring properties and land uses. If the lot fronts on more than one road, decisions can be made about which roads would better serve as access, how the parking should be laid out, etc.

■ **LOT LAYOUT**

When the opportunity presents itself through a multi-lot subdivision, the subdivision design should consider shared driveways or an interior street, with lots fronting off of the interior rather than the main roads.

■ **PARKING LOT LOCATION AND DESIGN**

There are a number of issues with parking lots for commercial uses, such as:

- ✓ locating the building(s) close to the road and putting the parking on the side or in the rear of the parcel;

- ✓ requiring shared parking, when feasible;
- ✓ planning for future shared parking by designating reserved areas on the plan;
- ✓ prohibiting parking and loading that requires backing out onto the street; and
- ✓ the use of vegetative buffers between parking lots and roads.

■ **DRIVEWAY LOCATION AND DESIGN**

- ✓ Do not allow more than one entrance and one exit drive on any lot.
- ✓ Make sure the driveway is long enough to allow vehicles to pull off the road and stack inside the lot before entering the road.
- ✓ Require two-way driveways to intersect the road at an angle of 70-90 degrees.
- ✓ Address sight distance from the access point. Adequate sight distance will depend on the road classification and traffic volumes, but ideally, sight distance should be at least 11 times the speed limit.
- ✓ Avoid curb cuts on sharp hills.
- ✓ Limit driveway grades within 20 feet of the road to no more than 3% uphill and 6% downhill.

# CONSTRUCTION MATERIALS ANALYSIS

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# CONSTRUCTION MATERIALS

## I. INTRODUCTION

The primary source for identifying sand and gravel resources is the Soil Survey of Hillsborough County, which was completed in 1985<sup>6</sup> by the USDA Soil Conservation Service (SCS). The document includes a table entitled “Construction Materials” that lists four types of material by soil category; these are roadfill, sand, gravel, and topsoil.

The purpose of this section of the Master Plan is to identify such materials that may be located in Greenfield. The soil types are listed in tables and the boundaries of the soil units are illustrated on maps. These maps were created by the Southwest Region Planning Commission using computer technology known as the Geographic Information System (GIS). The soil information from the SCS Survey was digitized, and the maps printed out at 11”x17” size for inclusion in this chapter of the Master Plan.

This section addresses Greenfield's opportunities for earth excavation as defined by RSA 155-E. Amendments made to this law in 1989 and 1991 made it incumbent on towns to ensure that their zoning ordinances provide for excavation. Otherwise “excavation shall be deemed to be a use allowed by special exception . . . in any non-residential area of the municipality, . . .”<sup>7</sup> and the zoning board of adjustment shall grant the special exception upon a finding by the board that the excavation would not diminish property values, unreasonably change the character of the neighborhood, create traffic hazards, or create any health or safety hazards.

## II. THE SOIL SURVEY

The following descriptions of the four types of construction materials are based on the above-referenced Soil Survey of Hillsborough County. Soil categories are identified in the Survey by number and letter; the number represents the composition of the soil, and the letter designates the steepness - “A” being the flattest and “E” the steepest. Note that the maps developed for this report show the soil unit boundaries but not the identifying number and letter, as the scale of the maps would render this information illegible. The complete designation is, however, provided in the following tables.

The classifications used to designate the construction materials are based on a number of factors, including observed performance of the soil, soil properties, and site features that affect the removal of the material and its use as a construction material.

### A. DESCRIPTION OF MATERIALS

#### ▪ Roadfill

Roadfill is defined by the Survey as soil material that is excavated in one place and used in road embankments in another place. Only soils suitable for low embankments (under six feet) were rated by the Survey.

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<sup>6</sup> Soil Survey of Hillsborough County, New Hampshire, US Department of Agriculture, Soil Conservation Service, 1985. (The SCS is now the Natural Resource Conservation Service.)

<sup>7</sup> RSA 155-E: 4, III.

Roadfill is rated as being either “good”, “fair” or “poor”. “Good” soils are those that are comprised of significant amounts of sand or gravel or both, with slopes of 15% or less. “Fair” soils have in excess of 35% silt and clay-sized particles, with slopes of 15-25%. “Poor” soils contain many stones, or slopes of more than 25%.

▪ **Topsoil**

Topsoil is defined in the Survey as material used to cover an area in order to establish and maintain vegetation. For the purposes of the Survey, only the upper 40 inches of soil were evaluated for its use as topsoil.

Topsoil is also rated as being either “good”, “fair” or “poor”. Soils rated as “good” contain no stones or cobbles, have little or no gravel, and slopes of less than 8%. “Fair” soils are sandy, have considerable amounts of gravel or stone, or slopes of 8-15%. “Poor” soils are comprised of a lot of sand or clay, have a large amount of gravel or stone, with slopes of more than 15%.

▪ **Sand and Gravel**

Sand and gravel are defined in the Survey as natural aggregates suitable for commercial use with a minimum of processing. The Survey evaluated only the probability of finding materials in quantities large enough as to be suitable for removal.

The properties used to evaluate sand and gravel soils include the thickness of the material, the size of the grain, and the content of rock fragment. A soil rated as “probable” has either a layer of clean sand or gravel, or a layer of sand or gravel with up to 12% silty fines. In addition, the material must be at least three feet thick and have less than 50%, by weight, large stones.

### **III. CONSTRUCTION MATERIALS IN GREENFIELD**

The four types of construction materials found in Greenfield are described below; accompanying maps illustrate the extent and location of these materials. “Good”, “fair” and “poor” roadfill and topsoil are identified; for sand and gravel, both the “probable” and the “improbable” soil units are identified. The source for all four tables is the Hillsborough County Soil Survey of 1985.

Note that the survey assumes that all of the land area in Greenfield is comprised of some amount of these four soil types. Therefore, when roadfill, for example, is calculated, the total of the “good”, “fair”, and “poor” roadfill soils equals the total land area of the town, based on the SCS study.

**A. ROADFILL**

Roadfill materials in Greenfield are primarily of the “poor” classification, with much smaller areas of “good” and “fair” identified. Areas of good roadfill soils range in size from several rather large concentrations to numerous smaller pockets distributed all over town in no particular pattern. The larger areas are primarily located to the south and west of Route 31.

The fair materials are also distributed virtually all over town, with the largest concentration to the east of Hancock and north of Peterborough. The remaining soils in Greenfield are classified as poor roadfill material.

**B. TOPSOIL**

All topsoil in Greenfield is rated as “poor”, with one exception: a very small (less than 2 acres) pocket of fair topsoil is indicated on the west side of Old Bennington Road about midway between County Road and the Bennington Town Line.

**C. SAND**

The distribution of sandy soils is much more defined than roadfill soils; the probable sandy soils are almost all concentrated in the center of Town in a northwest-southeast pattern.

**D. GRAVEL**

Gravel deposits in Greenfield follow almost the same disbursement pattern as the sand, but there are fewer acres deemed probable for the presence of this material.

The table below presents the calculated acreages for all four construction material types. Based on the SCS information, Greenfield clearly has more sand and gravel than roadfill or topsoil. Good, or even fair, topsoil, in fact, is virtually non-existent in town. Sand is slightly more in abundance than gravel, with each estimated at 69 and 66 percent of the land area, respectively.

**TABLE #1:  
CONSTRUCTION MATERIALS BY TYPE AND ACREAGE**

<b>CONSTRUCTION MATERIAL</b>	<b>AREA (in acres)</b>	<b>% OF TOTAL LAND AREA</b>
<b>Roadfill</b>		
Good	2,772	9%
Fair	8,083	28%
Poor	18,232	63%
<b>Topsoil</b>		
Fair	1.7	1%
Poor	29,086	99%
<b>Sand</b>		
Probable	19,985	69%
Improbable	9,102	31%
<b>Gravel</b>		
Probable	19,256	66%
Improbable	9,831	34%
<b>Total Land Area – 29,087 Acres</b>		

SOURCES: SOIL SURVEY OF HILLSBOROUGH COUNTY,  
US DEPARTMENT OF AGRICULTURE, 1985

#### IV. GROUNDWATER IDENTIFICATION

To refine the identification of sand and gravel deposits in the Town of Greenfield, aquifer delineation studies are examined and compared to the SCS Soil Survey. This information is useful, since the identification of potential groundwater is based in part on the inferred presence of sand and gravel soils; thus, the interpretation that where an aquifer exists, so too, do sand and gravel deposits. Groundwater identification should not, however, be solely relied upon to locate sand and gravel deposits, as these data present only part of the total picture.

The reason for this is that sand and gravel deposits were created by glaciers and rivers, and can be deposited on valley floors, hillsides and hilltops. The aquifer studies identify those soils that were deposited on valley floors - known as stratified drift. The other formations that must also be considered are eskers and deltas, both of which can be prodigious sources of sand and gravel deposits, which are not found in valley floors, but rather on hillsides and hilltops. Therefore, they would not show up on an aquifer map. These formations all have something in common, namely that the materials have all been sorted by water; however, while good aquifers are also good sand and gravel sites, good sand and gravel sites are not always good aquifer sites.

The following map illustrates the latest available aquifer information, for Greenfield specifically. Aquifers, river basins and watersheds for the entire southwest region are presented on a map entitled *Stratified Drift Aquifers with Watersheds/Basins, Southwest Region* found in the Natural Features Chapter. These maps represent the results of a statewide aquifer-mapping project by the NH Department of Environmental Services in cooperation with the US Geological Survey, begun in 1985.

The goal of the project was to update the reconnaissance level mapping that was completed in the mid-1970s (commonly known as "the Cotton Maps"). In addition, GIS technology was used to develop the maps. The methodology employed to develop these maps included drilling observation wells at selected sites around the state. The project divided the state into 14 study areas whose boundaries largely coincide with natural drainage basins.

The new maps identify significant stratified-drift aquifers by their location as well as their hydraulic properties and internal characteristics. Thus, these new maps don't just illustrate the estimated boundaries of an aquifer, they also provide information on ground water flow, depth of deposits, volume of sediment, etc.

Examination of the region-wide map found in the Natural Resources Chapter of the Master Plan shows that Greenfield lies within portions of three major watersheds: the Upper Contoocook to the west; the Piscataquog to the northeast; and the Souhegan to the southeast.

A more detailed aquifer map for Greenfield alone can be found on the following page. This map shows a fairly large aquifer deposit exactly in the center of town, underlying areas that are considered probable for sand and gravel.

## V. EXCAVATION OPERATIONS IN GREENFIELD

As part of this report, all known existing and abandoned sand and/or gravel pits in town were identified. They are described below based in part on information from Excavation Reports that were submitted to the Planning Board in 1991, and are located on the accompanying map by a number corresponding with the table. All of the sites are in private ownership.

**TABLE #2:  
KNOWN EXCAVATION SITES IN GREENFIELD, NH**

<u>Site Location</u>	<u>Acreage</u>	<u>Zoning District</u>	<u>Status of Operation</u>
1. Sawmill Road (Map R-2, Lot 17.1)	178	Industrial	Active
2. Slip Road (Map V-4, Lot 8)	24.9	Village	Inactive since 1979
3. Zephyr Lake Road (Map R-6, Lot 22)	30+	Industrial	Inactive since 1978
4. Route 31 South (Map R-7, Lot 5)	198	Rural/Agriculture	Active
5. Forest Road (Map R-6, Lot 18)	55	General Residence	Reclaimed
6. Old Bennington Road (Map R-1, Lot 1)	271	Rural/Agriculture	Active
7. New Boston Road (Map R-7, Lot 23.1)	57	Rural/Agriculture	Active
8. Peterborough Road		General Residence	Inactive
9. Peterborough Road		General Residence	Reclaimed
10. Longwood Drive		General Residence	Inactive
11. Old Bennington Road		Rural/Agriculture	Reclaimed
12. Route 31 south		General Residence	Inactive. Never used commercially; Town used materials for road building.
13. Cavender Road		Rural/Agriculture	Reclaimed

<u>Site Location</u>	<u>Acreage</u>	<u>Zoning District</u>	<u>Status of Operation</u>
14.Old Bennington Road		Rural/Agriculture	Inactive

SOURCE: GREENFIELD PLANNING BOARD

In addition to these active and formerly active sites, there are two sites for which permits were requested, but were not granted by the town; one is located off of Muzzy Hill Road, and the other on Slip Road. Both sites contain materials suitable for excavation, but the applications were not able to satisfy the town or state requirements for earth excavations.

Excavation has not been a dominant land use activity in Greenfield, although there are, according to town records, four active sites and eight inactive sites. Most of the current activity is on a small scale, with perhaps only one or two truck trips a year hauling from the property.

## VI. OPPORTUNITIES IN GREENFIELD FOR EXCAVATION

The information on construction materials in this chapter is intended to be used for land use planning. Once locations of sand, gravel, roadfill and topsoil have been identified, the Planning Board can make informed decisions regarding the appropriate locations for the excavation of these materials.

As noted earlier, RSA 155-E requires towns to allow some opportunity for earth excavation. The law also allows towns that have adopted a Water Resource Management and Protection Plan consistent with RSA 674:2,VIII to include in their local excavation regulations provisions that are aimed at protecting water resources.

The Town of Greenfield is zoned for five districts, the largest being the Rural/ Agricultural District. The zoning ordinance permits excavation in the industrial areas, of which there are two: one on Sawmill Road near the Bennington Town Line, and one in the Russell Station area (refer to accompanying zoning map). As the map of Excavation Sites illustrates, most of the known sites are located in either the General Residence District or the Rural/Agriculture District. In fact, of the four active sites, only one is located in the Industrial District; the other three are in the Rural/Agriculture District. This means that three of the four sites are nonconforming uses, thereby operating under certain restrictions regarding expansions. Even though the law does make provisions for expansions of earth excavations, generally speaking, nonconforming uses do not automatically have the same rights to change and expand, as do permitted uses.

## VII. CONCLUSION

Based on the maps generated for this chapter, the Soil Survey, and the available information on excavation sites in Greenfield, it would appear that the Town has a fair to large supply of sand and gravel, and most of the sand and gravel appear to be located beneath the Town's aquifer deposits. In addition, three-quarters of the existing permitted and active sites are located in a district in which they are not a permitted use.

Issues around excavation in Greenfield have primarily revolved around the permitting process, i.e., the Board's need to understand which sites would be considered under the law and which

would not. Today, given the pattern of development, opportunities for any large-scale excavations appear to be quite limited.

The following are considerations of the Planning Board with regard to earth excavation:

- The Board will consider whether to develop an aquifer protection district.
- The Board will consider whether to permit excavations (by special exception) in the Rural/Agriculture District.
- The Board will recommend that the NH Department of Environmental Services Environmental Fact Sheet on Best Management Practices for Fueling and Maintenance of Excavation and Earthmoving Equipment is followed by all operators.

# COMMUNITY FACILITIES ANALYSIS

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## COMMUNITY FACILITIES

### I. INTRODUCTION

This Section of the Master Plan identifies public and semi-public facilities that serve the residents and property owners of Greenfield. An important function of town government is to provide residents and property owners with a level of service commensurate with taxes and fees paid that meet the current needs of the populace. In Greenfield's case, these include public safety (police, fire, and ambulance), public works (water, sewer, roads, solid waste disposal, and cemetery maintenance), schools, recreation, cultural facilities, health and welfare services, and the town government operations (selectmen, property maintenance, and assessment).

The degree to which these facilities are developed has a significant impact on the quality of life and general character of a community. This chapter of the Master Plan presents an inventory of such facilities and services, an assessment of the adequacy of the current level of service, and any plans or recommendations to expand, improve, or add to an existing facility or service.

### II. TOWN HALL/TOWN GOVERNMENT

The administrative services for Greenfield are located in the former elementary school on Sawmill Road in the Village. This is a two-story wood frame building constructed in 1885, with a lower level that is also in use. The entire building was renovated in 2001 for use as town offices. The major renovations are complete, but the second floor still needs carpeting and painting.

The lower level has space for the Police Department, Voter Registration, Supervisors on the Checklist, Trustees of the Trust Funds, and the Town Archives. The first floor has a large meeting room, and offices for the Selectmen, Town Clerk, Tax Collector, Building Inspector, and Welfare Director. The second floor provides meeting and filing/storage space for the Planning Board, Board of Adjustment, Conservation Commission, Recreation Director, and Oak Park Committee, and the Greenfield Trails Association.

### III. POLICE PROTECTION

Police protection in Greenfield is provided by a full-time Chief, one full-time officer and three part-time officers. Coverage is provided 24 hours a day by shifts in the Department's one cruiser. The Department is located in the lower level of the Town Hall.

### IV. FIRE & RESCUE SERVICES

Fire protection is provided by a volunteer Fire Department with 40 members, 10 of which are exclusively trained rescue personnel. The Department is located on Forest Road just west of the Village. The Fire House was constructed in 1974, and contains two bays, two deep, a fully equipped kitchen, and two small offices. Funds were appropriated at Town Meeting 2001 to construct an addition onto the Fire House which will add one bay, two deep, a meeting room, and an Emergency Communication Room.

Equipment owned and maintained by the Department consists of three fire apparatus, two engines, one tanker, a Rescue unit, and a state-owned Forestry Truck on loan to the Department.

Greenfield participates in the Southwestern Mutual Aid System, based in Keene, which is a dispatch center for member towns that receives all emergency calls for police, fire, and ambulance service. The Department is considering also becoming a member of the Souhegan Valley Mutual Aid System, since neighboring towns to the east of Greenfield are members of that organization.

## **V. HIGHWAY DEPARTMENT**

The Highway Department is located on DPW Drive, off of Sawmill Road, in a building constructed in 1974. The 40' x 80' building contains four equipment bays, an office, and a parts room. Also on the property are a salt shed and a sander hanger, both of a pole barn-type construction.

The Department employs a full-time Road Agent, one other full-time employee, and a full-time town employee who works part time for the Department in the summer, and part time on other town jobs.

Equipment owned and maintained by the Department consists of the following:

- ◆ 1999 426C Loader/Backhoe
- ◆ 1996 350 one-ton Dump Truck
- ◆ 1991 4900 International
- ◆ 1988 670B John Deere Grader
- ◆ 1978 920 Caterpillar (shared with the Recycling Center)
- ◆ 1963 B81 Mack Dump Truck

## **VI. SOLID WASTE DISPOSAL**

The Town of Greenfield operates a transfer station/recycling center on DPW Drive, off of Sawmill Road. The facility is located on about 2 ½ acres of land behind the Highway Department. Structures on site consist of an 80' x 16' open recycling building, 10' x 10' oil shed for used oil, and an 8' x 10' office. Equipment used on site is a one-ton rack truck compactor (recently purchased) and a pay loader, which is shared with the Highway Department. The center is staffed by one employee, and is open to residents 24 hours per week.

Materials recycled are #1 & #2 plastic, cardboard, aluminum cans, mixed paper, tin, glass, metal, white goods, and old clothing. The center also provides space for discarded items offered to the public for reuse.

The Town contracts with Waste Management, Inc., a disposal company, to haul all materials away, the recyclables as well as the trash. The company charges \$78 per ton and \$105 a truck load. In the year 2000 the center processed 81 tons of recyclables and approximately 180 tons of solid waste.

There is no charge to residents to use the center, with the exception of the disposal of tires, refrigerators and air conditioners. The money brought in from these items is almost completely

offset by what it costs to dispose of them, and to have Freon pumped. Some revenue comes from the metal pile and aluminum cans.

A Recycling Committee has been formed to examine whether there is any possibility of generating more revenue for the center. A proposal is being examined that involves the purchase of a baler; with this piece of equipment, the center could bale its materials, which would enable the Town to sell them; currently, all materials are hauled out loose, meaning not only does the Town not realize any revenue from recyclables, but it also must pay to have them removed. Having the ability to bale also means adding onto the existing building and having a forklift to move the materials. An estimate has \$40,000 to accomplish this has been suggested, with a revenue offset of \$10,000 a year on the sale of recyclables.

## VII. MUNICIPAL WATER/SEWER

Greenfield currently has no municipal water or sewer systems; However, as a result of the PlanNH Charrette in 1997 (referenced also in the Transportation chapter), the Selectmen are pursuing a recommendation of the Charrette to acquire the East Coast Steel property and use it for the development of a municipal sewage disposal system. The conclusion of the Charrette team – which was originally brought in to explore the feasibility of redeveloping the site into elderly housing. The team determined that the site was completely inappropriate for elderly housing, and instead put forth the following recommendation, for which a bond was approved by the voters at the March 2000 Town Meeting:

*To demolish the building and create a community leach field that would be used by all the abutting properties. Lots in the Village abutting this site are small, and some are already exhibiting signs of septic system failure; furthermore, given the size of the lots, replacement opportunities for systems would be difficult. Providing this municipal system to which the abutting properties could be connected would serve as an incentive for attracting new investment in the Village – both the repair and replacement of existing uses, as well as new development.*

## VIII. LIBRARY

The Stephenson Memorial Library is located in the center of the Village in a stone building constructed in 1909 for this purpose, and has been used continuously as a library ever since. Staff consists of one part-time Librarian (22 hours per week) and one Assistant Librarian (11 hours per week).

The Library currently has about 15,000 volumes; more than 4,000 volumes circulated in the year 2000. Students from the Elementary School visit the Library regularly for Story Hour, and the Library hosts a Summer Reading Program.

A substantial addition is planned for the Library that will double useable space, add handicapped bathrooms, computers, an expanded Children's Room, staff workspace, and more shelving and stack space.

## IX. RECREATION

Greenfield is fortunate to have three entities in town that are involved with providing recreational opportunities to the residents; they are:

- 1) Town Recreation Department: This is managed by a part-time Director, who works 15 hours a week, with an office in the Town Hall. The Director is responsible for managing a variety of programs for both youth and adults at various sites around town, listed below:

- ◆ Annual Holiday Events (Easter Egg Hunt, Halloween, and Christmas celebrations).
- ◆ Supervised swimming at Sunset Lake
- ◆ Tennis at Oak Park
- ◆ Ice Skating at Sunset Lake
- ◆ Arts & Crafts
- ◆ Little League Baseball at Oak Park
- ◆ Karate at the Elementary School
- ◆ Teen Dances in the gymnasium at the Town Hall

- 2) Oak Park Committee: Oak Park is a town-owned 20 acre park on Forest Road, west of the Village. General maintenance of the Park is provided by the Town, and the Committee, comprised of volunteers, raise money to construct or provide various recreational structures at the Park, as listed below:

- ◆ Soccer
- ◆ Field
- ◆ Running Track
- ◆ Baseball Field
- ◆ Dugouts
- ◆ Tennis Courts
- ◆ Pavilion
- ◆ Gazebo
- ◆ Basketball Court
- ◆ Playground
- ◆ Horseshoe Pits

In addition to the above, construction of a volleyball court is in progress, and there are plans to install an irrigation system for the playing fields.

- 3) Greenfield Trails Association:
- 4) In addition to the above, the Crotched Mountain Rehabilitation Center makes certain facilities available to residents of Greenfield, such as use of the swimming pool, including discounts on lessons, use of the gymnasium, the volleyball court, as well as the Media Center, Library, and movies.

Table #1 lists the recreation facilities and opportunities in Greenfield. Some highlights of these facilities are as follows:

- ◆ Four bodies of water, totaling 133 acres.
- ◆ Trails:
  - 1) The Wapack Trail runs 22 miles from Mt. Watatic in Ashburnhan, Massachusetts and passes through the Southwest Region in New Ipswich, Temple and Greenfield, ending at

North Pack Monadnock. Developed in the 1920s and served as the model for the Appalachian Trail. Rated “Moderate” to “Difficult.”

- 2) Hiking/Nature Trail on Crotched Mountain – 3 ½ miles, rated “Easy”, leads to a beaver pond.
- ♦ Open Space:
  - 1) Municipally-protected - 143 acres.
  - 2) Society for the Protection of New Hampshire Forests – 17 acres
- ♦ State Bicycle Routes: Route 31 from the Village south; Forest Road from the Village west.

**TABLE 1:  
RECREATIONAL OPPORTUNITIES IN GREENFIELD**

FACILITY/LOCATION	PRIMARY USE	ACTIVITIES	OWNERSHIP	ACREAGE
Playground & Gymnasium/ School	In development		School	1
½ Gymnasium/Town Hall			Town	
Town Beach – Zephyr Lake	Water Sports	Beach Swimming	Town	1
Town Beach – Sunset Lake	Water Sports	♦ Picnicking ♦ Beach Swimming	Town	1
Hog Back Pond	Natural Pond	♦		
Oak Park	Active Recreation	♦	Town	20
Greenfield State Park (Otter Lake)	Campground	♦ Beach Swimming ♦ Camping ♦ Fishing ♦ Snowmobiling ♦ Cross-Country Skiing	State of New Hampshire	351
Brantwood Camp	Resident/Youth Camp	♦ Basketball ♦ Soccer ♦ Baseball ♦ Canoeing ♦ Beach Swimming ♦ Outdoor Pool Swimming	Private Nonprofit	300
Crotched Mountain	Natural Area	Hiking		
Wapack Trail	Trail	Hiking Nature Trail	Private Nonprofit	
Emma Gibson Lot	Natural Area		Private Nonprofit	17
Sportsmen’s Club	Field Sports		Private Nonprofit	16

Barbara Harris Camp and Conference Center	◆ Camp ◆ Conference Center		Private Nonprofit	400
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**X. EDUCATION**

Greenfield is a member of the nine-town Contoocook Valley School District (ConVal). The District owns and operates an elementary school in each of its eight towns, and provides both a middle and a high school in Peterborough and a middle school in Antrim.

The elementary school in Greenfield was newly constructed in 1999 on Forest Road, just west of the Village. The building is a one-story wood frame structure, with eight classrooms, a Title 1 room, library, guidance room, staff kitchen, principal’s office, secretary’s office, and cafeteria. The cafeteria is not equipped, however, for cooking; the food is brought in each day by van.

The school teaches Kindergarten through Grade 4; from Grade 5 on, the students go to Peterborough. The Kindergarten program is only for a half day. Personnel at the school consist of five teachers (including the Principal), one Extra Study Teacher, three aides, an Administrative Assistant, and custodian. There is also a music teacher, an art teacher, a physical education teacher, and a guidance counselor who are not permanently located at the school, but travel to all the schools in the district on a regular schedule; in addition, a nurse visits the school on an eight-day rotating basis.

As of October 1, 2001 the Greenfield Elementary School had 280 pupils enrolled, including Kindergarten; this represents 9% of the total ConVal student population. Information on school enrollments and costs per pupil for ConVal and its neighboring school districts is presented below:

**TABLE 2:  
SCHOOL DISTRICT ENROLLMENTS, 1999 – 2000**

GRADE LEVEL:	SCHOOL DISTRICTS			
	CONVAL	JAFFREY- RINDGE	WILTON- LYNDEB.	MONAD- NOCK
Pre-Kindergarten	17	18	0	29
Kindergarten	177	103	0	140
Elementary	941	673	0	1,224
Middle School	1,085	411	129	461
High School	934	467	198	817
<b>TOTAL</b>	<b>3,154</b>	<b>1,672</b>	<b>327</b>	<b>2,671</b>

SOURCE: NH DEPARTMENT OF EDUCATION

Within its immediate region, ConVal is the largest school district, with more than 3,000 students. On the western side of the region, Monadnock Regional is the second largest with more than 2,600 students. In the Conval District, by far the largest group of students is in the middle school,

followed by elementary school. This is not the case in the other three districts examined here, but one characteristic shared by all is that pre-kindergarten and kindergarten have much lower enrollments than either the middle or the high schools.

**TABLE 3:  
COST PER PUPIL, 1989 – 1999**

<b>School districts</b>					
<b>GRADE LEVEL</b>	ConVal	Jaffrey-Rindge	Wilton-Lyndeb.	Monadnock Regional	State
Elementary	\$6,934	\$6,530	0	\$5,945	\$5,793
Middle School	\$6,477	\$6,131	\$6,158	\$5,754	\$5,726
High School	\$6,903	\$6,928	\$7,887	\$6,001	\$6,629
Total	\$6,765	\$6,544	\$7,193	\$5,929	\$6,009
Total Expenditures	\$26,373,448	\$11,286,279	\$2,894,196	\$18,251,612	\$1,395,227,815

SOURCE: NH DEPARTMENT OF EDUCATION

Per pupil costs for education within this selected subregion range from the high \$5,000s to nearly \$8,000. ConVal's costs are higher than all other districts except for Wilton-Lyndeborough's, and higher even than the state average.

Money to fund education in New Hampshire comes primarily from local property taxes. Costs for education are currently at the center of a major state-wide debate, in the Court as well as in the Legislature. The Legislature has authorized a state education tax that collects money in the form of a surcharge on property tax and disburses it to towns that meet the criteria for need. This tax has been in place for two years, but is the subject of challenge, and it is unclear at this time what the result will be.

In addition to the Greenfield Elementary School and the middle and high school in Peterborough, residents of Greenfield have access to dozens of childcare/learning centers in the area; private schools in Dublin, Jaffrey, Peterborough, and Wilton; and post-secondary education offered by two colleges in Keene (Antioch New England and Keene State College), one in Rindge (Franklin Pierce College), and branches of the New Hampshire Technical College at ConVal, Conant High School in Jaffrey, and Mascenic High School in New Ipswich.

## **XI. MEETING HOUSE**

The Greenfield Meeting House is located in the heart of the Village, sited on a knoll surrounded by the Town Common. This is the oldest original meeting house in New Hampshire that is still used for civic and religious functions. It is owned by the Town and jointly used and maintained by the Town and the Community Church. First constructed in 1775, it has been altered, repaired and redecorated many times since, including the rebuilding of the steeple in 1985 and the installation of a fire alarm system. In 1983, the Meeting House was placed on the National Register of Historic Places.

Many civic, church, youth and private groups use the Meeting House. The building has a complete kitchen in the basement that serves a dining area with seating for 100 people; in addition, there is a partial kitchen on the main floor to accommodate smaller gatherings.

**XII. CEMETERIES**

Greenfield has one active cemetery and three inactive cemeteries. The cost of maintaining these cemeteries is shared by the Town and income derived from Trust Funds. Details of these cemeteries are listed below:

**TABLE 4:  
CEMETERIES IN GREENFIELD**

	NAME OF CEMETERY			
	Greenvale	Old Cemetery	Whittemore	Shea
YEAR ESTABLISHED	Early 1800s	1791	?	?
LOCATION	Route 31 south of the Village	Meetinghouse	End of New Boston Road	Slip Road, across from Post Office
SIZE OF LOT	15 acres	Less than 2 acres	50' x 50'	6' x 6'
# OF BURIAL SITES	800	450	Fewer than 30	8
CHARACTERISTICS	The only active cemetery in Town. The stone wall is in the process of being repaired.	This cemetery has the oldest stone of all the cemeteries	A Revolutionary War Veteran is buried here. The Boy Scouts clean the area each year. There is no fence around this cemetery, and the gate needs repair.	This was never a Town cemetery, but a burial plot for one family that died of a plague.

Old Coach Lane/Fletcher Cemetery consisted of three graves and was the first cemetery in town. When Greenvale Cemetery opened, interred were moved from Fletcher to Greenvale.

**XIII. POSTAL SERVICE**

The Post Office is located on Slip Road, in a brick frame building that was constructed for this use in 1967. Employees consist of one full-time Postmaster, and one full-time rural route carrier. There are a total of 360 boxes available, with 260 currently rented; the rural route delivers to 370 households.

The current location of the Post Office is not the most desirable for Greenfield residents. Prior to 1967 the Post Office was located in the Village, which made it not only convenient for most

people to use, but the Post Office also served as an informal gathering place – not unusual in small towns. Post Offices in village areas play an important role as an anchor in the Village, along with stores, libraries, municipal functions, and residential uses.

#### **XIV. HEALTH & HUMAN SERVICES**

The Town of Greenfield supports a number of regional human service organizations, in addition to providing a certain amount of direct assistance to families in town. In the year 2000, support was given to eight families, which reflects a steady decrease since 1990, when 18 families applied for assistance.

The regional associations to which the Town contributes are: Green Thumb, Home Health Care & Community Services, Keene Community Kitchen, Milford Mediation, Monadnock Family Services, Project Lift, Samaritans, and St. Joseph's Hospital in Nashua.

The Town is now also home to Greenfield Commons, a 24-unit Elderly Housing complex that gives priority to residents of Greenfield.

#### **XV. EXPENDITURES**

The amount of money spent by Greenfield taxpayers for these various community facilities and services is outlined below in Table 5. Note that this table does not include the cost of education, as this amount is so much larger than any other line item that it skews the other data. As is typical for most New Hampshire towns, the largest part of the town budget is devoted to the Highway Department. Even though this represents the greatest single expenditure, this has not increased as much over the 10-year period as some other items have – for example, General Administration, which increased by over 150%, and the Library, whose expenditures increased by over 95%. Expenditures for all community facilities and services have increased by 89% between 1990 and 2000.

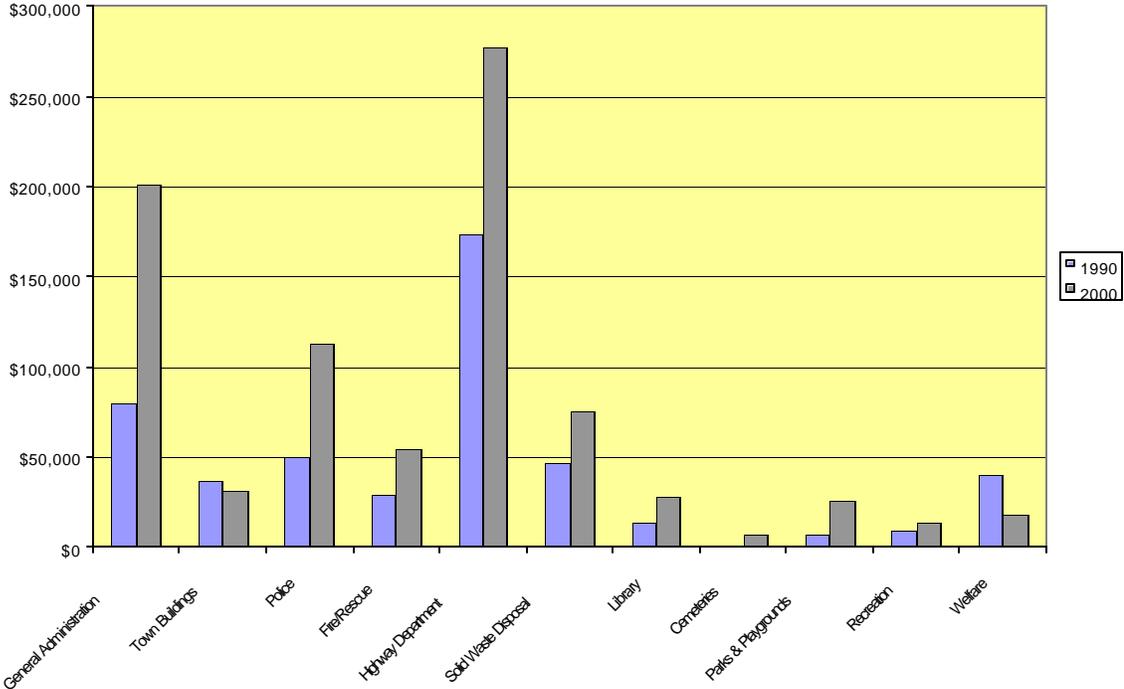
**TABLE 5:  
EXPENDITURES FOR COMMUNITY EXPENDITURES, 1990 - 2000**

	<b>1990</b>	<b>2000</b>	<b>% Change</b>
Town Government			
<i>General</i>	\$79,763	\$200,817	151.8%
<i>Administration</i>			
<i>Town Buildings</i>	\$36,367	\$31,600	-13.1%
Police	\$49,628	\$112,384	126.5%
Fire/Rescue	\$29,087	\$54,491	87.3%
Highway Department	\$173,121	\$276,448	59.7%
Solid Waste Disposal	\$46,667	\$75,497	61.8%
Library	\$14,259	\$27,903	95.7%
Cemeteries	\$602	\$7,415	1131.7%
Recreation			
<i>Parks &amp; Playgrounds</i>	\$7,575	\$26,149	245.2%

Recreation	\$9,095	\$13,945	53.3%
Welfare	\$39,940	\$18,516	-53.6%
<b>TOTAL</b>	<b>\$446,164</b>	<b>\$845,165</b>	<b>89.4%</b>

SOURCE: GREENFIELD ANNUAL REPORTS

**GRAPH 1:  
EXPENDITURES FOR COMMUNITY EXPENDITURES, 1990 - 2000**



See accompanying map for the location of community facilities in Greenfield.

# NATURAL FEATURES ANALYSIS

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# NATURAL FEATURES

## I. INTRODUCTION

The natural features chapter of the Master Plan uses the environmental criteria of topography, soils, and water resources to evaluate the town's land area and its potential for various types of development. Although natural features can often enhance a particular development site, they just as often pose significant barriers to development; this can be seen by examining locations where existing development has occurred. It is true that transportation routes are another factor in the location of development; however, to a great degree, the location of roads and railroads are also determined by the natural features of the land.

This section enables the Planning Board to address areas of the town that are most suitable for development and high intensity land uses, and evaluate the existing limitations of the land that would have to be accommodated. Environmental limitations may include steep slopes, seasonally wet soils, wetlands, floodplains, shallow bedrock, and underground aquifers.

This section also points out the areas of town that deserve special protection due to the environmental function of the land, for example, a specific wetland area that provides flood water storage during times of heavy rain. In addition, this section notes specific areas the Town may wish to conserve for future community use due to their aesthetic or historic qualities. Not all open spaces need to be steep slopes or wetlands. Some areas may be prime lands set aside for future school sites, parks, intensive farming operations, or other limited low intensity land uses that add value to the overall community.

Greenfield has many natural features that make the Town a very desirable place to live. Outside of the downtown area, the Town is still quite rural with many rolling hills, green fields, streams and waterbodies. Greenfield is also in close proximity to Peterborough and Milford, two regional economic and employment centers. Outside of the downtown area, lots are often five acres or more in size. As the value of land increases, there is greater motivation to subdivide larger parcels and sell smaller lots. This natural features analysis can assist the Town and the Planning Board in establishing appropriate locations for growth to occur, while at the same time preserving the natural environment that the residents currently enjoy.

## II. TOPOGRAPHY

The topography of Greenfield is dominated by Crotched Mountain in the north and North Pack Monadnock in the south. Crotched Mountain lies in the three towns of Greenfield, Bennington, and Frankestown. The mountain's highest elevation is actually in Frankestown (2,020 feet above sea level); in Greenfield the highest elevation is 1,500 feet, in the northeasterly corner of the town, going down to 900 feet at Sunset Lake.

North Pack Monadnock has the highest elevation in town, ranging from 1,300 feet at Mountain Road up to over 2,200 feet at the highest point just north of the Temple town line.

Gould Hill in the south-central part of town and Blanchard Hill on the eastern side of town are two other concentrated areas of high elevation, although they do not exceed 1,200 feet. The

western and central parts of town have the lowest elevations, ranging from 700 to 900 feet above sea level.

### III. SOILS

As mentioned earlier, soils information is an important consideration in land use planning since the various characteristics of soils can have such an impact on land use – such as steepness, wetness, flood susceptibility, etc. These various aspects are examined briefly below. Soil information for Greenfield was obtained from the following sources:

- 1) Soil descriptions and mapping: Soil Survey of Hillsborough County, New Hampshire, Western Part, published by the US Department of Agriculture Soil Conservation Service, October 1985.
- 2) Soil development capability: Soil Potential Ratings for Development; Hillsborough County, NH, prepared by the Hillsborough County Conservation District in August 1984.

According to the above-referenced soil surveys, the landscape in western Hillsborough County is hilly and characterized by large areas of loamy soils with numerous stones on the surface. The area in which Greenfield is located is drained by the Contoocook River and the Souhegan River, both of which flow into the Merrimack River. The generalized soil map for this area indicates that much of Greenfield's land area – in the south and west – is comprised of excessively drained soils.

#### A. STEEP SOILS

Generally speaking, the steeper the land the greater the possibility for erosion and sedimentation, and the more problems can be encountered in siting wells and septic systems.

Steepness is measured in terms of slope, which is defined as the change in elevation (vertical distance) over horizontal distance; the more abrupt the change in elevation, the steeper the slope. Slope is measured and expressed as a percentage that represents the relationship between elevation and horizontal distance.

Typical categories that might be seen on a slope map are 0-8%, 9-15%, 16-24%, and over 25%. Land in the 0-8% slope category is generally preferred for all types of development. Gradual slopes are most favorable for building roads, and public water and sewer facilities can be installed at the least cost to the community. Also, excavations for most structures can be done at a minimal cost and the erosion associated with such work can be reduced easily on-site. The exceptions to this would be wetland areas and floodplains because they occur primarily in the 0-5% slope range. An examination should be made as to the environmental function of such wetland and floodplain areas, as well as the risks that might be inherent in development before such lands are utilized for building sites.

As the slope increases to the 8-15% category, the land is more suited to less intensive forms of development. Carefully placed residential dwellings and some agricultural uses (orchards and field crops) may be suitable for this terrain. As development approaches a

15% gradient, it requires more careful consideration for all types of development. Once a slope exceeds a 15% gradient, all forms of development are considered unsuitable, although it is really at the 25% slope and above that development becomes very problematic. These areas have benefits as conservation areas for low intensity recreational uses and wildlife habitats. Also, their disturbance can create serious erosion problems, washing out topsoil and even roadways downhill. Forestry practices on such slopes must be confined to low-impact operations, with proper erosion controls in place. Other important controls for forestry uses include minimal basal area cutting (definitely no clear cutting), and skid roads designed for steep slope harvesting.

When developing steep terrain, the potential for environmental damage increases as the slope gradient increases. Overly steep slopes consisting of sands and gravels left after the excavation of an area will quickly gully and erode. Erosion control barriers should be in place at the time of excavation and prompt reseeding and regrading should take place afterwards. Surface water run-off rates and erosion factors increase as the slope steepens. This will cause sedimentation of the surface waters downslope and will clog stream channels and rivers if no erosion controls are in place.

Greenfield has only six soil types associated with steep slopes, which are primarily found on the sides of hills, along ridgetops, and as rocky outcrops void of soil cover; they are listed below:

**TABLE #1:  
STEEP SLOPE SOIL TYPES**

SYMBOL	SOIL TYPE	CHARACTERISTICS	SLOPE	SUITED FOR	NOT SUITED FOR
76D	Marlow Loam	Moderately steep, well drained	15-25%	Tree Farming	Building site development, septic systems, recreation
77D	Marlow Stone Loam	Moderately steep to steep, well drained	15-35%	Tree Farming	Building site development, septic systems, recreation
143D	Monadnock Stony Fine Sandy Loam	Moderately steep to steep, well drained	15-35%	Tree Farming; source of sand for construction	Building site development, septic systems, recreation
161D	Lyman-Tunbridge-Rock Outcrop	Moderately steep to steep, exposed bedrock	15-35%	Tree Farming	Building site development, septic systems, recreation

	Complex				
22E	Colton Loamy Sand	Moderately steep to very steep, excessively drained	15-50%	Tree Farming; source of sand and gravel for construction	Building site development, septic systems, recreation
36E	Adams Loamy Sand	Moderately steep to very steep, excessively drained	15-50%	Tree Farming; source of sand for construction	All types of recreation development

SOURCE: Soil Survey of Hillsborough County, New Hampshire, 1985

Examination of the accompanying *Steep Slopes* map indicates that the northern, southern and eastern areas in Greenfield are the ones most affected by 15% or greater slopes. The northern area is of course Greenfield's part of Crotched Mountain, which also lies in Bennington and Franconia. The area in the south of town is part of North Pack Monadnock Mountain, with elevations rising from 1,300 feet above sea level at Mountain Road to 2,278 feet at the highest point – which is, in fact, the highest elevation in western Hillsborough County. Blanchard Hill and Gould Hill, on the eastern side of town, do not have the same elevations or steepness, but do have over 25% slopes.

**B. WETLAND SOILS**

Wetland soils in Greenfield are those that the soil survey categorizes as being poorly drained (Hydric A) and very poorly drained (Hydric B); the location of these soils is illustrated on the accompanying *Wetlands and Hydric Soils* map. The wetland areas in Greenfield are predominantly situated in the west central part of town, between Forest Road and the Peterborough town line. These wetlands are associated with Otter Brook and the surrounding area.

Directly abutting Powder Mill Pond is another fairly large deposit of wetland soils; and there are several, smaller, pockets of wetland soils distributed around town, mostly to the east of the Village area.

The soil types and characteristics that make up the wetland soils are described below in Table #2.

**TABLE #2:  
WETLAND SOIL TYPES**

SYMBOL	SOIL TYPE	CHARACTERISTICS	SUITED FOR	NOT SUITED FOR
15	Searsport Muck	Nearly level and very poorly drained	Habitat for wetland wildlife. Probable source of sand for construction	Building site development, septic systems, recreation development, and farming

105	Rumney Loam	Nearly level and poorly drained	Habitat for openland, woodland, and wetland wildlife. Probable source of sand for construction	Building site development, septic systems, some types of recreation development, and farming
197	Borohemists, ponded	Nearly level and very poorly drained	Habitat for wetland wildlife	Most uses
214A	Naumberg Fine Sandy Loam	Nearly level and somewhat poorly drained and poorly drained	Habitat for openland, woodland, and wetland wildlife. Probable source of sand for construction	Building site development, septic systems, recreation development, and farming
247B	Lyme Stony Loam	Nearly level to gently sloping and poorly drained	Habitat for woodland wildlife	Building site development, septic systems, recreation development, and farming
295	Greenwood Mucky Peat	Nearly level and very poorly drained	Habitat for wetland wildlife	Most uses
395	Chocorua Mucky Peat	Nearly level and very poorly drained	Habitat for wetland wildlife. Probable source of sand for construction	Most uses
495	Ossipee Peat	Nearly level and very poorly drained	Habitat for wetland wildlife	Most uses
549	Peacham Stony Muck	Nearly level and very poorly drained	Habitat for wetland wildlife	Building site development, septic systems, recreation development, and forest management
647B	Pillsbury Stony Loam	Nearly level to gently sloping, somewhat poorly drained and poorly drained	Habitat for woodland wildlife	Building site development, septic systems, and recreation development

SOURCE: Soil Survey of Hillsborough County, New Hampshire, 1985

**C. AGRICULTURAL SOILS**

The 1985 Master Plan indicated that agriculture was still an important factor in Greenfield’s land use, and a map was included that illustrated the soil types that are categorized as being suitable for farming.

The Hillsborough County Soil Survey also designates prime farmland, which is land of major importance in meeting the nation's needs for food and fiber. Of the nine soil types that are considered to be prime farmland, only four of them are found in Greenfield. Furthermore, they represent a very small area of land, and are scattered about the town in such a way as to preclude the possibility of any type of large-scale farming.

Agricultural soils, on the other hand, cover most of the town, but this does not mean that farming is conducted all over town. Some of these soils may be suitable for only specific crops. The LESA (Agricultural Lands Evaluation and Site Assessment) manual should be consulted when a choice needs to be made regarding the use of one particular farmland over another, depending on whether the use is for farming or general development.

#### **IV. FLOODPLAINS**

Floodplains are land areas that are susceptible to flooding. These areas actually have two parts: the floodway and floodway fringe. The floodway includes the channel and an additional area that often carries excess flow. The floodway fringe (more commonly known as the 100-year floodplain or the Special Flood Hazard Area) is a broader area over which floodwater may spread, but where the flow velocity is slower. This is an important distinction for land use planning, since some uses can safely occur in the Special Flood Hazard Area, but not in the floodway.

The Federal Emergency Management Agency (FEMA) has mapped the floodplains for all relevant municipalities; the boundaries of the floodplains were computed at cross sections interpolated between cross sections, based on hydraulic information and past experience of flooding. Flood Insurance Rate Maps (FIRM) define the 100-year floodplain (meaning there is a 1 out of 100 chance of flooding in any given year; over long periods of time, base floods will occur on the average once every 100 years), and an area of 500-year floodplain (a 1/5 out of 100 chance of flooding in any given year).

The Flood Insurance Rate Maps for Greenfield became effective May 1, 1980, and the Town then entered into the National Flood Insurance Program, which permits homeowners who live in the floodplain to purchase insurance for their property. However, in order for landowners to be able to purchase this insurance, the Town needed to adopt a Floodplain Management Ordinance, which it has done. This Ordinance requires the Town to keep track of all development in the Special Flood Hazard Areas (SFHA) and ensure that if any new construction or substantial improvements to a home are proposed for the SFHA, the lowest enclosed floor must be at or above the base flood elevation.

The purposes of this requirement are to minimize the potential for flood damage, to avoid damage-prone uses in the floodplains, and to reduce development pressure of flood hazard areas. Communities that do not maintain and/or enforce their floodplain regulations may be suspended from the insurance program, which could have serious consequences for any affected landowners if their mortgage holders wished to cancel the mortgage. For these reasons, it is very important for the Town to keep the Floodplain Management Ordinance up to date by amending it as necessary, and to monitor all development within these areas.

Greenfield has only a small amount of floodplain, primarily located in four distinct areas in town:

1. Abutting Powder Mill Pond, from Bennington to the Peterborough Town Line;
2. Along Otter Brook, from Otter Lake to Slip Road and down to Cornwell Road;
3. Along Rand Brook in the northeastern part of town; and
4. In the southeastern corner from Russell Station to Lyndeborough Mountain Road. These floodplain areas are also consistent with much of the wetland soils identified by the County Soil Survey.

## V. WATER RESOURCES

Greenfield has a land area of approximately 26.2 square miles, or 16,778 acres. Surface water accounts for only approximately 350 acres. Aquifers, or groundwater, are also included in this analysis, since they provide an important source of water for private and community wells. A description of the town's watersheds, waterbodies, watercourses, and aquifers is presented below.

### A. WATERSHEDS

The watershed is the principle focus in describing a surface water system. A watershed is the land area made up of a series of connecting higher ridges that drain surface water to the lowest point, which is where a stream or a river flows out of the watershed.

Greenfield is situated within portions of three major watersheds: the Upper Contocook River, the Piscataquog River, and the Sougehan River Watersheds, all of which lie within the Merrimack River Basin; the location and extent of these watersheds can be seen on the accompanying *Stratified Drift Aquifers with Watersheds/Basins, Southwest Region* map.

### B. WATERBODIES

Greenfield has six waterbodies, listed below:

1. Powder Mill Pond – 435 acres, on the border with Bennington and Hancock.
2. Otter Lake – 61.2 acres, located in the west central part of town, just north of Forest Road.
3. Sunset Lake – 30.9 acres, located to the north of the intersection of Sawmill and Crotched Mountain Roads.
4. Zephyr Lake – 30.9 acres, on the west side of Route 31 south.
5. Hogback Pond – 9.89 acres, situated between Sawmill and Forest Roads, just to the northwest of the Village.
6. Mud Pond.

The first five ponds on the list are classified by the NH Department of Environmental Services as Public Waters, which means that they are subject to the state Comprehensive

Shoreland Protection Act (RSA 483-B). This law was enacted in 1991, and establishes standards for the subdivision, use and development of the land around the state's public waters, defined as all land located within 250 feet of the water.

**C. WATERCOURSES**

Greenfield's most significant watercourse is the Contoocook River, which forms the Town's border with Hancock, and therefore shares the river. In addition, there is Otter Brook that runs south and east from Otter Lake into Zephyr Lake. Rand Brook runs east to west between Francestown and East Road, crossing into Lyndeborough.

**D. AQUIFERS**

Aquifers are concentrations of groundwater, found where saturated layers are permeable and the storage and transmission of water can take place. Aquifers are resupplied through precipitation, surface water, wetlands, lakes and streams. The water then moves to a saturated zone (aquifer) where the pore spaces between soil particles are filled by the water. It is very important that the surface of the earth be able to transmit water so that a certain percentage can be stored underground. Excessive compaction or extensive covering of the land surface reduces the volume of groundwater which, as stated earlier, affects the supply of water to wells.

Aquifers of medium to high potential occur in Southwest New Hampshire as unconsolidated deposits of sand and gravel, or in bedrock fractures (known as consolidated deposits). The unconsolidated deposits, also called stratified drift deposits, contain sorted layers of gravel, sand, silt and clay - occurring chiefly in valley bottoms. These materials have abundant pore space to store water, and pore space may amount to more than 30 percent of the total volume of the deposit. Consequently, these stratified deposits of sand and gravel have become good sources of medium to high volume aquifers.

The consolidated deposits, or bedrock fractures, are a more productive water source when the bedrock is overlaid by a layer of sand gravel, which allows the recharge to occur directly from above. They are usually adequate for domestic wells. In contrast, a till aquifer will typically have a lower-yielding well life. This is due to a mixture of clay, silt, gravel and boulders that tend to compact due to the different soil particle sizes. The transmission and storage of water is greatly decreased in this type of aquifer. The water table (the top of the saturated zone) can fluctuate, depending on the volume recharge to aquifer material.

Groundwater in saturated soils is generally vulnerable to pollution because surface contamination can infiltrate directly into it. It is possible, however, to trace the source of pollution by finding the watershed boundary. Once a pollutant enters an aquifer, it may remain in place for an indeterminate period of time. While pollutants can enter an aquifer easily because sand and gravel are porous and transmit water rapidly, once in the aquifer their movement is then governed by groundwater flow, which moves very slowly through the tiny pore spaces of the glacial till.

Sources of aquifer pollution are frequently located on the ground surface directly above or contiguous to the aquifer: septic tank effluent, landfill refuse, leakage from sewer lines

or ruptured fuel tanks, agricultural fertilizers and pesticides are among the many possible sources of pollution for an aquifer. In addition to these potential contaminants are the materials such as fuels, lubricants or other toxic materials associated with earth excavation, an activity that is, of course, directly associated with sand and gravel aquifers.

The US Geological Survey provides aquifer delineation maps for the entire state. The map is essentially a surficial geology map, showing the distribution of unconsolidated (not bedrock) geologic material on the land surface. There do exist bedrock aquifers, but these were not part of this particular study. This study identifies areas of sand and gravel and measures the rate of transmissivity - that is, the speed with which water passes through the materials, in increments of 1,000 feet squared per day.

The *Stratified Drift Aquifers with Watersheds/Basins* map for Greenfield identifies several areas of these groundwater deposits, with one particularly large area that covers the entire central part of Town. This is significant, considering the discussion above about the potential effects of covering over the ground under which aquifers lay.

# POPULATION AND HOUSING ANALYSIS

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# POPULATION AND HOUSING

## I. INTRODUCTION

The examination of population and housing statistics is a critical element of a Master Plan. The state statute that addresses the purpose and description of a Master Plan (RSA 674:2.III) calls for a *“housing section which assesses local housing conditions and projects future housing needs of residents of all levels of income and ages in the municipality and the region as identified in the regional housing needs assessment performed by the regional planning commission pursuant to RSA 36:47,II, and which integrates the availability of human services with other planning undertaken by the community.”*

While population studies are not specifically addressed in the enabling legislation, to plan for the impacts of population changes as they relate to housing availability is obviously an integral part of the master planning process. By knowing Greenfield’s past population trends and projecting the future population, it is possible to estimate the level of town services necessary to serve the expected growth and to plan for that growth to occur in an orderly manner. This chapter is intended to provide that information.

An analysis of the population and housing statistics also enables the Planning Board to determine whether amendments to the zoning ordinance might be required in order to address any inequities made apparent through the analysis. Following two important NH Supreme Court cases,<sup>8</sup> the concept of equal opportunity housing is now firmly established in the master plan process. In short, every town must, through its master plan, address the current and future housing need of all its residents - and in doing so must consider the housing situation in its neighboring towns as well.

## II. METHOD OF ANALYSIS

This analysis relies on two primary sources: the US Census Bureau and the New Hampshire Office of State Planning (OSP). Information for both population and housing encompasses the years from 1980 to 2000, and annual estimates developed by OSP, as applicable. This time period gives a good indication of relevant trends. It must be noted that the way in which Census information is collected and reported results in some sampling errors and inconsistency in the numbers; nevertheless, this is the best and most comprehensive information available for this type of report. The methodology employed will measure the absolute growth in population and housing; the percentage growth over a particular time period; and the change in percentages, resulting in a picture of any change in the composition of the population or the housing stock.

## III. POPULATION ANALYSIS

According to the 2000 Census, Greenfield has a total population of 1,657 persons. This number represents a 70% increase over the past 20 years. Although not shown in the table below,

---

<sup>8</sup> *Soares v. Atkinson*, 128 NH (1986) and *Britton v. Town of Chester*, 134 NH (1991). In both cases, the court held that the local zoning ordinance did not provide reasonable housing opportunity for low and moderate-income residents.

Greenfield’s population nearly doubled during the 1970s, the growth slowing considerably since then.

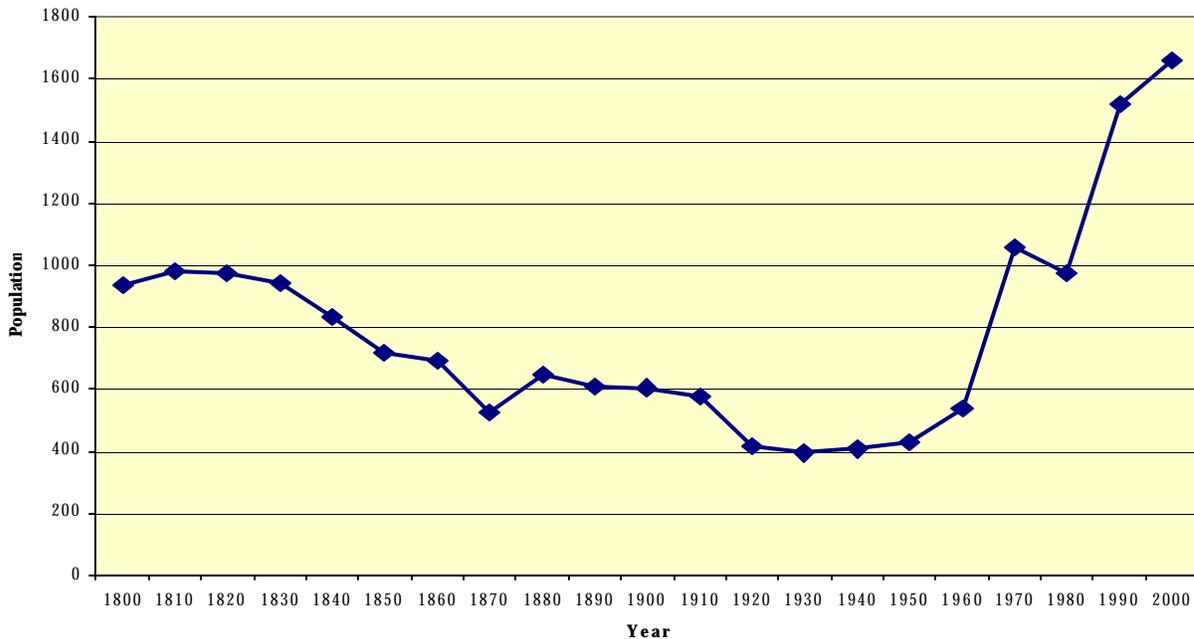
**TABLE 1:  
POPULATION TRENDS, 1980 - 2000**

YEAR	POPULATION	% CHANGE
1980	972	--
1990	1,519	56.3%
2000	1,657	9.1%

SOURCE: U.S. BUREAU OF THE CENSUS

The graph below presents a brief historical perspective of population change over time, illustrating the population from 1800, the first year for which a census was recorded in Greenfield, to the present. As the graph illustrates, Greenfield experienced mostly a steady decline – no change- in population until about 1950, when small increases were recorded. After 1960 the population has steadily increased – with the exception of the 1970s, when there was a small decline.

**GRAPH 1:  
GREENFIELD POPULATION, 1880 - 2000**

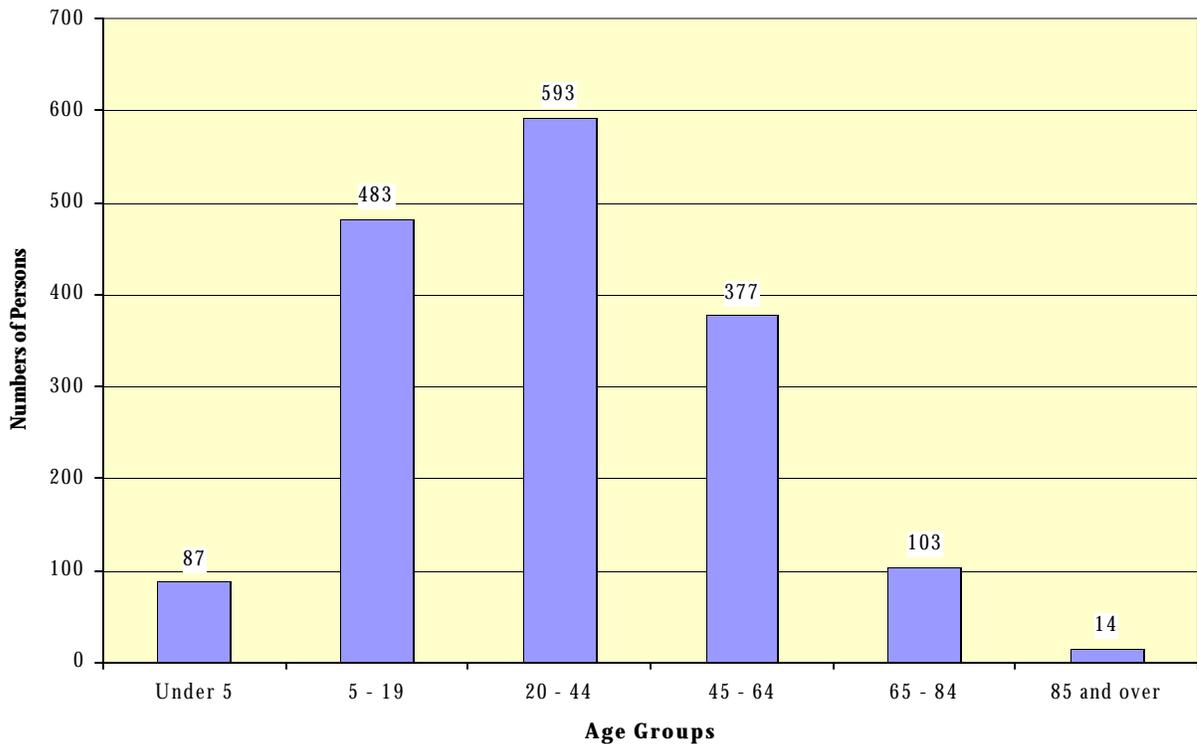


The Census breaks the population numbers out by age categories, which is also of interest for planning purposes. The 2000 Census counted 845 males and 812 females. The graph below illustrates the population breakdown by age grouping, but not by males and females, information, which is not available at this time. The graph illustrates that Greenfield’s population is primarily

composed of people in the work force age category - the most populous age group was the 20 -44 year-olds. The second most populous large group is the school-age population. The median age of the total population in Greenfield in 2000 was 34.5 years.

Census information does break out males and females for the 18 and over and 65 and over groups. These numbers show more males in the total over 18 population (590 to 557), but in the 65 and over group, females outnumber the males, 63 to 54.

**GRAPH 2:  
2000 POPULATION BY AGE**



**A. POPULATION CHARACTERISTICS**

Two factors affect population change: natural increase, or the excess of births over deaths; and migration, the movement of people into or out of the community. Table 2 below presents the birth and death statistics for Greenfield for the 10-year period from 1990 to 2000. These figures show that Greenfield has had a positive increase – meaning more births than deaths, in each of the years examined except 1996, in which there were two more deaths than births. The increases overall have been rather slight, ranging from 2 to 13 persons.

Over these past 10 years, Greenfield has had a natural increase of 67 people. If the natural increase figures are applied to the 1990 and 2000 Census information, a determination can be made as to the effect of in-migration on the population, for example:

**TABLE 2:  
NATURAL INCREASE**

POPULATION, 1990	<b>1,519</b>
NATURAL INCREASE, 1990-2000	<b>67</b>
POPULATION IN 2000, IF NO MIGRATION	<b>1,586</b>
ACTUAL 2000 POPULATION	<b>1,657</b>
THEREFORE, INCREASE DUE TO IN-MIGRATION	<b>71</b>

YEAR	BIRTHS	DEATHS	NATURAL INCREASE
1990	18	10	8
1991	20	9	11
1992	18	5	13
1993	16	4	12
1994	14	11	3
1995	10	7	3
1996	7	9	-2
1997	12	6	6
1998	15	6	9
1999	10	8	2
2000	10	8	2
<b>Total</b>	<b>150</b>	<b>83</b>	<b>67</b>

Thus, based on the above calculation, in-migration accounted for over 50% of the population increase between 1990 and 2000.

SOURCE : GREENFIELD ANNUAL REPORTS

Additional data gathered from the US Census reinforces the role that in-migration might play in population growth. Table 3 below presents information on place of residence five years prior to the Census count. This type of information is used to determine resident mobility and stability, albeit the time period is not extensive.

**TABLE 3:  
PLACE OF RESIDENCE, PERSONS 5 YEARS AND OVER**

PLACE OF RESIDENCE	1990	% OF TOTAL	PLACE OF RESIDENCE	2000	% OF TOTAL
Same House in 1985	693	50%	Same House in 1995	937	60%
Different House, Same County	344	25%	Different House, Same County	421	27%
Different County, NH	124	9%	Different County, NH	75	5%
Different State	223	16%	Different State	134	9%
Different Country	3	0%	Different Country	2	0%

SOURCE : US BUREAU OF THE CENSUS

Half of Greenfield's population lived in the same house five years prior to the 1990 Census and 60 percent lived in the same house five years prior to the 2000 Census. The largest percentage of Greenfield's population appears to be native to either the Town or the state of New Hampshire.

The two tables following present information collected by the Census on income and poverty levels. Table 4 contains median household and family incomes for Greenfield residents in 1990

and 2000, and compares those to the incomes for Hillsborough County<sup>9</sup> and the state of New Hampshire; and Table 5 presents the census information on poverty levels.

**TABLE 4:  
INCOME INFORMATION - GREENFIELD AND HILLSBOROUGH COUNTY, 1990 & 2000**

	1990			2000		
	Greenfield	Hillsborough County	State	Greenfield	Hillsborough County	State
Median Household Income	\$40,057	\$40,404	\$36,329	\$48,833	\$53,384	\$49,467
Median Family Income	\$43,333	\$46,249	\$41,628	\$56,250	\$62,363	\$57,575
Per Capita Income	\$15,107	\$17,404	\$15,959	\$19,895	\$25,198	\$23,844

SOURCE: US BUREAU OF THE CENSUS

Percent Change 1990-2000			
	Greenfield	Hillsborough County	State
Median Household Income	22%	32%	36%
Median Family Income	30%	35%	38%
Per Capita Income	32%	45%	49%

Overall, Greenfield residents compared favorably with the average county and state incomes, both in 1990 and 2000. However, the per capita income level did not increase as much as the county or state levels did during the same time period (32% increase for Greenfield as opposed to a 45% increase for the County and a 49% increase for the State). Information on poverty levels gives a slightly different picture. Between 1990 and 2000, there was an improvement in the numbers for both all persons below poverty and the elderly below poverty. The percentage of the population below the poverty level dropped by three percent, and for the elderly there was a one percent decrease. Both years indicate, however, that the elderly tend to be closer to poverty than the rest of the population.

**TABLE 5:  
POVERTY LEVELS – GREENFIELD AND HILLSBOROUGH COUNTY, 1990 & 2000**

PERSONS FOR WHOM POVERTY STATUS IS DETERMINED:	GREENFIELD	COUNTY	GREENFIELD	COUNTY
	1990	1990	2000	2000
Above Poverty Level	1,203	309,735	1,576	357,483
Below Poverty Level	94	19,261	81	23,358
% Below Poverty	8%	5%	5%	6%

<sup>9</sup> The Census defines a family as a householder and one or more persons in the same household who are related by birth, marriage or adoption. A household, on the other hand, includes all nonrelated persons who occupy a housing unit, and may consist of just one person.

## Over Age 65:

above poverty	85	31,144	107	37,401
below poverty	9	3,238	10	3,125
% Below Poverty	10%	10%	9%	8%

SOURCE: US BUREAU OF THE CENSUS

**B. SUBREGIONAL POPULATION COMPARISONS**

An analysis of population is not complete without a comparison of Greenfield's population with that of its immediate neighbors – Bennington, Frankestown, Lyndeborough, Temple, Peterborough, and Hancock. Statistics on percent of growth can be misleading if the towns involved in the comparison vary too greatly in population. For the purpose of this discussion, however, such a comparison can be useful, since the towns are all somewhat similar in size, with the exception of Peterborough. Table 6 below presents this information for the last two decades, 1980 – 2000.

**TABLE 6:  
SUBREGIONAL POPULATION COMPARISONS, 1980 – 2000**

	1980	1990	2000
<b>ABSOLUTE POPULATION</b>			
<b>GREENFIELD</b>	972	1,519	1,657
Bennington	890	1,236	1,401
Frankestown	830	1,217	1,480
Lyndeborough	1,070	1,294	1,585
Temple	692	1,194	1,297
Peterborough	4,895	5,239	5,883
Hancock	1,193	1,604	1,739
Total	10,542	13,303	15,042
<b>PERCENTAGE CHANGE</b>			
	<b>1980-1990</b>	<b>1990-2000</b>	<b>1980-2000</b>
<b>GREENFIELD</b>	56.3%	9.1%	70.5%
Bennington	38.9%	13.3%	57.4%
Frankestown	46.6%	21.6%	78.3%
Lyndeborough	20.9%	22.5%	48.1%
Temple	72.5%	8.6%	87.4%
Peterborough	7.0%	12.3%	20.2%
Hancock	34.5%	8.4%	45.8%
<b>PERCENTAGE OF SUBREGIONAL POPULATION</b>			
	<b>1980</b>	<b>1990</b>	<b>2000</b>
<b>GREENFIELD</b>	9.2%	11.4%	11.0%
Bennington	8.4%	9.3%	9.3%
Frankestown	7.9%	9.1%	9.8%
Lyndeborough	10.1%	9.7%	10.5%
Temple	6.6%	9.0%	8.6%

Peterborough	46.4%	39.4%	39.1%
Hancock	11.3%	12.1%	11.6%

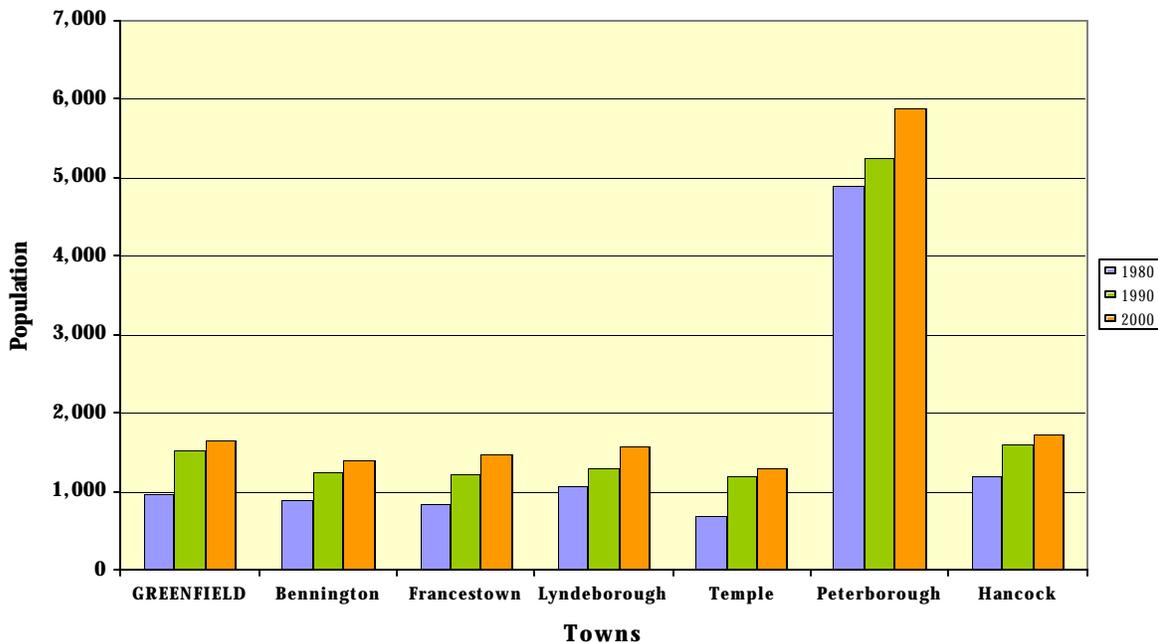
SOURCE: US BUREAU OF THE CENSUS

The figures in Table 6 illustrate widely variable rates of growth for Greenfield, as well as the six surrounding towns. Five of the seven towns had more growth in the 1980s than they did in the 1990s – Lyndeborough and Peterborough were the exceptions. Greenfield had the second largest increase in the 1980s, after Temple, but by the end of the 1990s, it was second to Temple for the least amount of growth. In 1980, excluding Peterborough (due to the large difference in its population compared to the other five towns), there was a 378-person difference from the smallest to the largest town. By 2000 this difference had reduced itself slightly to 360 people. Again, excluding Peterborough, in 1980 Greenfield was the second largest town in this subregion; in 1990 it was the largest town, and in 2000 it was again the second largest town (Hancock being the largest).

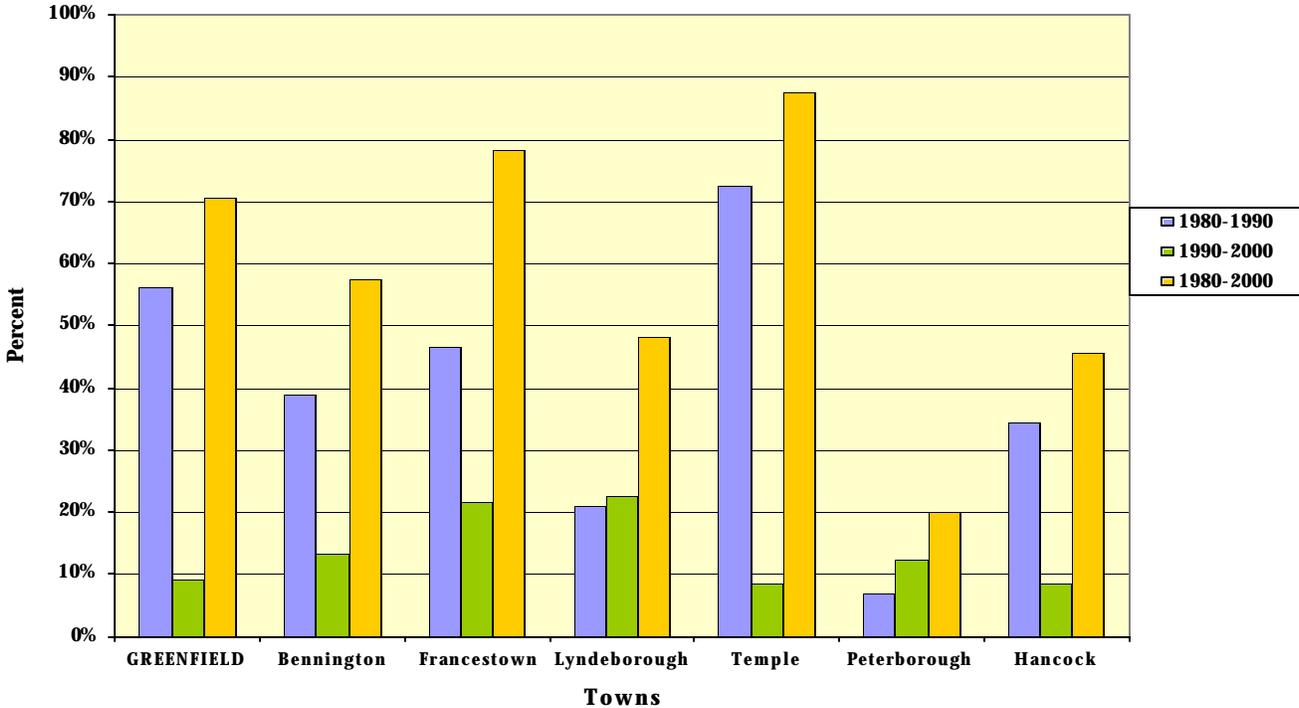
In terms of each town’s share of this subregional population, Peterborough obviously ranks the highest for each of the three years examined, although the percentage has decreased since 1980. Lyndeborough has remained the most constant, at around 11% of the subregional total. With the exception of Peterborough, Greenfield has the second highest percentage of the subregional population for 1980, 1990 and 2000.

The graphs below and on the following page visually present the information contained in Table 6. Graph 2 shows the absolute population of the towns in each year examined; Graph 3 illustrates the percentage of population increase over the twenty years; and Graph 4 compares the share of each town’s population relative to the total subregional population.

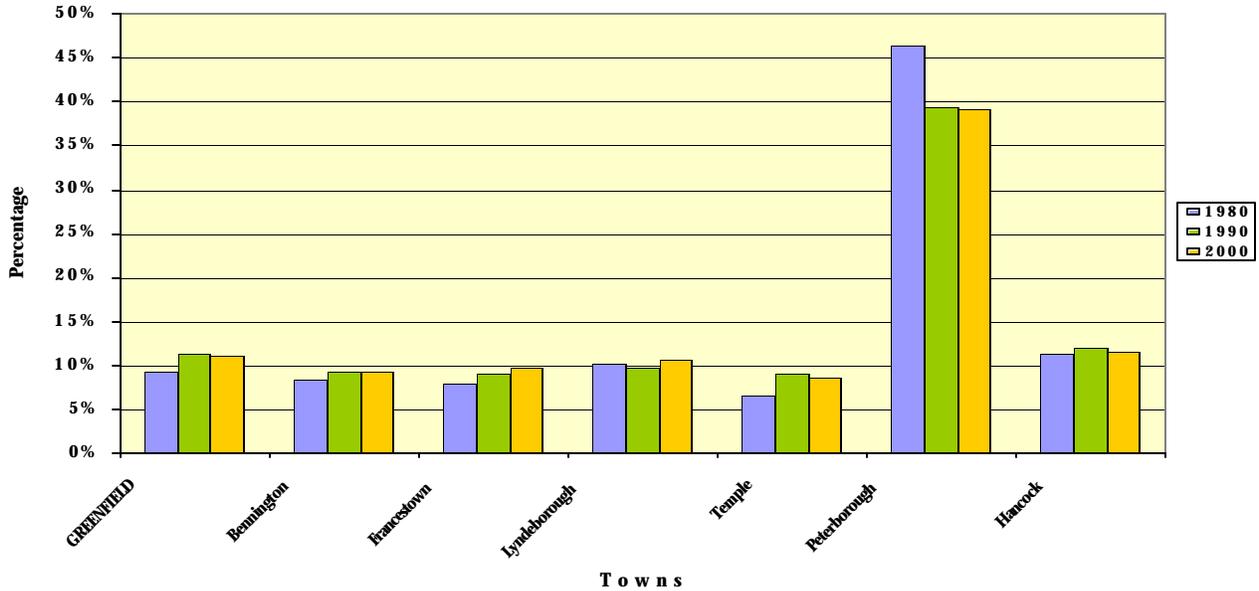
**GRAPH 2:  
SUBREGIONAL POPULATION, 1980 - 2000**



**GRAPH 3:  
PERCENT CHANGE IN POPULATION, 1980 – 2000**



**GRAPH 4:  
TOWN POPULATION AS PERCENT OF SUBREGIONAL POPULATION, 1980 - 2000**



## IV. HOUSING ANALYSIS

### A. DESCRIPTION OF THE HOUSING STOCK

In this section, statistics on housing supply and type, age of housing, and various housing conditions are examined in order to describe the status of the housing supply in Greenfield. Beginning with the basic number of total housing units, Table 7 below presents these numbers for the years 1980, 1990, and 2000, along with the tenure and vacancy information.

**TABLE 7:  
HOUSING SUPPLY & TENURE, 1980 -2000**

	<u># of Units</u>		<u>%</u>	<u># of</u>	<u>%</u>	<u>%</u>
	<b>1980</b>	<b>1990</b>	<b>Change</b>	<b>Units</b>	<b>Change</b>	<b>Change</b>
			<b>1980-90</b>	<b>2000</b>	<b>1990-00</b>	<b>1980-00</b>
All Housing Units	416	517	24%	640	8%	54%
Occupied Units	371	436	18%	563	16%	52%
owners	261	368	41%	458	24%	75%
renters	65	68	5%	105	54%	61%
Vacant Units	45	81	80%	77	-5%	71%
seasonal	24	50	108%	62	24%	158%
other vacant	21	31	48%	15	-52%	-29%
% vacant	12%	19%		12%		
% owner-occupied	70%	84%		81%		

SOURCE: US BUREAU OF THE CENSUS

The increases in the total housing units are consistent with the population changes witnessed over the same time period: that the greatest growth was in the 1980s, with a dramatic slowdown from 1990 to 2000. Over the past 20 years, occupied units increased and vacant units decreased to some extent, but the vacant seasonal units saw the greatest increases of all. In Greenfield most housing units are owner-occupied, although the percentage decreased slightly from 1990 to 2000.

Also of interest when examining housing issues is the type of housing units that are available in town. Housing stock is defined by the following types: single family, multi-family, and manufactured housing. Definitions used in this analysis come from OSP, which uses definitions developed by the US Census, but sometimes combines categories, as follows:

- Single Family (or 1-Unit Detached): A 1-unit structure detached from any other structure. This also includes mobile homes or trailers to which one or more permanent rooms have been added.
- Two Family. One structure containing two separate, independent housing units.
- Multi-Family: Any structure containing 2 or more housing units; this includes the Census classification of "I-Unit Attached."

- ❑ Manufactured Housing: Both occupied and vacant mobile homes to which no permanent rooms have been added. (Note that once any addition is put onto a manufactured unit, the Census counts it as a single-family dwelling.)
- ❑ Other: Any living quarters occupied as a housing unit that does not fit the previous categories, such as houseboats, railroad cars, campers and vans.

**TABLE 8:  
HOUSING SUPPLY BY TYPE, 1980 – 2000**

	<u>1980</u>		<u>1990</u>		<u>2000</u>		<u>% Change</u>
	<i>Number</i>	<i>% of Total</i>	<i>Number</i>	<i>% of Total</i>	<i>Number</i>	<i>% of Total</i>	<i>1980-00</i>
Single Family	311	84%	452	87%	472	84%	52%
Two-Family	9	2%	16	3%		0%	
Multi-Family	30	8%	34	7%	51	9%	70%
Man. Housing	20	5%	13	3%	36	6%	80%
Other			2	0%		0%	
<b>Total</b>	<b>370</b>		<b>517</b>		<b>559</b>		<b>51%</b>

SOURCE: US BUREAU OF THE CENSUS

Greenfield, like most towns in the region, has more single family housing than any other type. The percentages accounted for by each type of housing has not changed appreciably over the years, either: single family units accounts for between 84 and 87 percent; two- family between two and three percent; and multi-family between seven and nine percent. Manufactured housing, overall, has not changed that much, but there was a drop between 1980 and 1990 in the amount of this type relative to the total stock, but by 2000 this share had doubled.

The age of the housing stock is useful information in gauging whether or not to expect problems (see Table 9). There is a presumption that homes built prior to 1940 are more likely to be dilapidated or have outdated heating, water and septic systems. Even though this might be true overall, many older homes have been renovated and restored to good condition. Housing quality is also a function of age and income of the occupants, and these are examined later.

**TABLE 9:  
AGE OF HOUSING STOCK, BY  
DECADE OF CONSTRUCTION**

<u>YEAR</u>	<u>NUMBER</u>	<u>%</u>
<u>BUILT</u>	<u>NUMBER</u>	<u>OF TOTAL</u>
Before 1940	188	29%
1940 to 1959	68	11%
1960 to 1969	87	14%
1970 to 1979	101	16%
1980 to 1989	116	18%
1990 to 1994	51	8%
1995 to 1998	25	4%
1999 to		
March 2000	4	1%
<b>Total</b>	<b>640</b>	

SOURCE: US BUREAU OF THE CENSUS

Table 9 shows that a full 29% of the housing stock was constructed prior to 1940. After that, there was a limited amount of new construction until 1960, and over the next 30 years 48% of the current housing stock was constructed. 13% of the current housing stock was constructed during the 1990s.

The Census collects data that further describes housing stock by focusing on three conditions: whether or not the unit has complete plumbing & kitchen facilities; the number of rooms in each housing unit; and the number of persons living in each housing unit. In Greenfield, the numbers of units lacking complete plumbing and kitchen facilities are very minimal: in 1990 there were only 4 and 5 units, respectively, that fit this description, out of over 500 units. In 2000, there were no units that fit this description.

Table 10 illustrates that all four categories of housing units increased over time, with the exception of one and two room units which decreased by 24% from 1980 to 2000. The larger units of five or six rooms experienced the greatest increase (376% from 1980 to 2000). It is possible that many of these new units are accounted for by additions to existing housing stock. It is not uncommon that early post-war homes, typically smaller than is seen today, are converted over time, adding living and sleeping space. The overall average for homes in Greenfield is between five and six rooms per dwelling unit, a number that has been steadily increasing since 1980.

**TABLE 10:  
HOUSING UNITS BY NUMBER OF ROOMS**

	1980		1990		2000		% Change
	Number	% of Total	Number	% of Total	Number	% of Total	1980 - 2000
1 or 2 rooms	17	10%	22	9%	13	2%	-24%
3 or 4 rooms	33	19%	48	19%	127	20%	285%
5 or 6 rooms	62	35%	83	33%	295	46%	376%
7+ rooms	83	47%	113	45%	205	32%	147%
Total	176		251		640		264%
Rooms per Unit	5.4		5.6		5.9		

SOURCE: US BUREAU OF THE CENSUS

**B. MEASURE OF HOUSING PROBLEMS**

Census data relative to overcrowding and affordability are examined here, as these are two other variables that help gauge the extent of housing problems. Persons per room and the per unit occupancy are two measures the Census relies on to determine whether or not dwelling units are overcrowded.

**Overcrowding**

Table 11 presents four categories for examining household size. The Census selects these categories on the basis of their social significance and their frequency of occurrence. The table

shows that more units in Greenfield are occupied by 3-4 persons than by any other number, and that the percentage this category comprises of the total has risen over the years. The average number of people living in each unit increased from 1980 to 1990, but declined from 1990 to 2000.

**TABLE 11:  
OCCUPIED UNITS BY NUMBER OF PERSONS**

	1980		1990		2000		% Change 1980 - 2000
	Number	% of Total	Number	% of Total	Number	% of Total	
1 person	66	20%	60	14%	111	20%	68%
2 persons	111	34%	138	32%	184	33%	66%
3 or 4 persons	113	35%	185	42%	209	38%	85%
5+ persons	36	11%	53	12%	52	9%	44%
Total	326		436		556		
Persons per Unit	2.37		2.93		2.69		

SOURCE: US BUREAU OF THE CENSUS

The Census defines an overcrowded unit as one that is occupied by more than one person per room. The data for Greenfield, illustrated below in Table 12, indicate that overcrowding is not an issue. In all three Decennial census counts examined here, nearly 100% of the housing stock had a measure of 1.00 person per room, or less.

**TABLE 12:  
OCCUPIED UNITS BY PERSONS PER ROOM, 1980 – 2000**

	1980	% of Total	1990	% of Total	2000	% of Total
1.00 or less	317	97%	431	99%	554	98%
1.01 – 1.50	7	2%	4	0.9%	8	1%
1.51 or more	2	0.3%	1	0.2%	1	0.2%

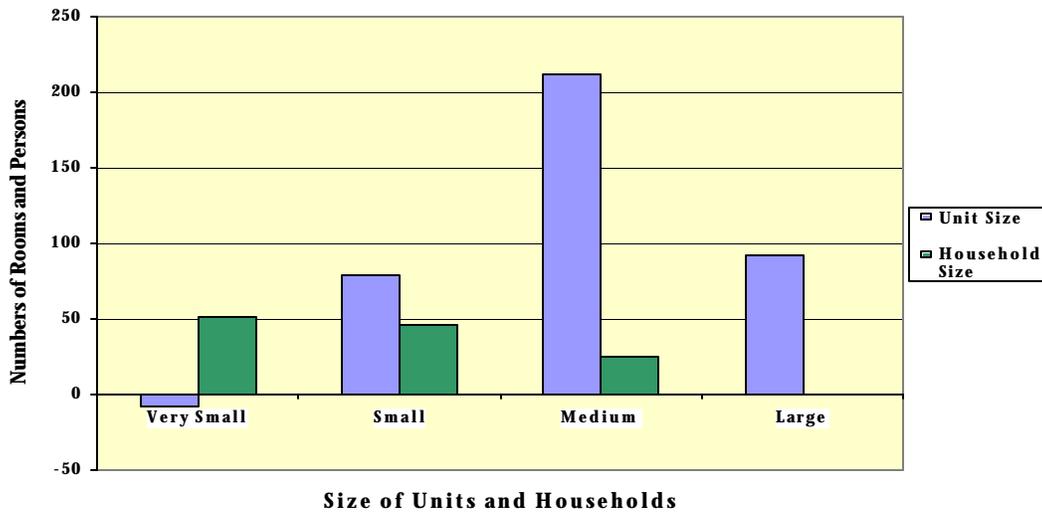
SOURCE: US BUREAU OF THE CENSUS

The graph following combines the data on number of rooms per unit with numbers of persons per unit, in order to understand further whether or not overcrowding is a problem in Greenfield (the numbers used in the graph are taken from Tables 10 & 11). By placing the two variables together in the same graph, the effect is to dramatize the differences or similarities in two different trends.

Based on the Census criteria for overcrowding, households ideally should have between 0.5 and 1.0 person per room, as noted above; thus, the “very small” to “large” categories above corresponding to an increasing number of persons per room. The graph shows the absolute growth of units and households (increase from 1990 to 2000 in each category from Tables 10 &

11). It is immediately obvious that the growth in households has been in the very small and small categories, of one to two persons per unit, and that the five or more-person household has declined over this same time period. Change in numbers of rooms per unit was just as dramatic but, as was noted earlier, the greatest increase was in the number of units with five or six rooms. The graph indicates that small and medium sized units are increasing faster than small and medium sized households.

**GRAPH 5:  
CHANGE IN HOUSEHOLD SIZE AND DWELLING UNIT SIZE, 1990 - 2000**



# of Rooms	1-2	3-4	5-6	7+
# of Persons	1	2	3-4	5+

**Affordability**

The information in this section is intended to determine how affordable and available housing is for people in Greenfield. Table 13 presents the relative cost of housing in Greenfield, based on Census data, compared to the median housing costs in the region. Table 14 illustrates the percentage of income spent on housing - whether this is in mortgage payments or rent; the level of income is categorized by groups, since exact income at this level of detail is not possible to obtain. And Table 14 calculates the ability of people to pay for housing based on income.

**TABLE 13:  
COST OF HOUSING, GREENFIELD AND REGION, 1980 - 2000**

Median Housing Cost	Cost of Housing in Greenfield			% of Regional Median Cost		
	1980	1990	2000	1980	1990	2000
House Value	\$49,900	\$120,200	\$119,400	105%	97%	94%
Contract Rent	\$208	\$514	\$687	101%	93%	98%
Regional Value	\$47,650	\$124,050	\$127,186			
Regional Rent	\$206	\$552	\$704			

SOURCE: US BUREAU OF THE CENSUS

Housing costs for both owners and renters have increased over the years, of course, as they have in the region and state as well; however, Greenfield's cost relative to the regional median housing costs have been fairly constant, being either just above or just below the median values. Table 14 refines the data in the previous table by illustrating not just what people pay for their housing, but what percentage those costs are of their income. It has been a fact that people in lower income brackets pay more – proportionally – for housing than do people in higher income brackets.

**TABLE 14:  
% OF INCOME SPENT ON HOUSING IN GREENFIELD, (1989 & 1999)**

	OWNERS		RENTERS	
	1989	1999	1989	1999
Less than 20%	82 (33%)	127 (41%)	13 (25%)	40 (44%)
20.0 to 24.9%	50 (20%)	61 (20%)	14 (27%)	14 (15%)
25.0 to 29.9%	24 (10%)	32 (10%)	3 (6%)	16 (17%)
30.0 to 34.9%	31 (13%)	28 (9%)	6 (12%)	--
35.0 to or more	58 (24%)	59 (19%)	11 (22%)	12 (13%)
Not Computed	1 (0.4%)	3 (1%)	4 (8%)	10 (11%)
<b>Total</b>	<b>246</b>	<b>310</b>	<b>51</b>	<b>92</b>

SOURCE: US BUREAU OF THE CENSUS

About 28% of owner-occupied households paid 30% or more of their monthly incomes on housing in 1999 as opposed to 37% in 1989. Approximately 13% of renter-occupied households paid 30% or more of their monthly incomes on housing in 1999 compared to 34% in 1989. The table indicates that people are paying less for housing in 2000 than they did in 1990.

Based on the assumption that no more than 30% of a household's income should be spent on housing for that to be considered affordable, the possibilities for home ownership in Greenfield are examined in the table below. The property tax calculation is based on the 2000 tax rate.

**TABLE 15:  
HOME OWNERSHIP AFFORDABILITY IN GREENFIELD, 2000**

<b>2000 MEDIAN HOUSEHOLD INCOME</b>	<b>\$38,821</b>	<b>80% OF MEDIAN HOUSEHOLD INCOME</b>	<b>\$31,057</b>	<b>50% OF MEDIAN HOUSEHOLD INCOME</b>	<b>\$19,410</b>
30% of monthly income	\$970	30% of monthly income	\$776	30% of monthly income	\$485
Property Tax (\$3,457/year)	\$288	Property Tax (\$2,766/year)	\$230	Property Tax (\$1,729/year)	\$144
Available for mortgage	\$682	Available for mortgage	\$545	Available for mortgage	\$341
Mortgage affordable at 7.5% for 30 years	\$96,919	Mortgage affordable at 7.5% for 30 years	\$77,535	Mortgage affordable at 7.5% for 30 years	\$48,459
Plus 5% downpayment	\$5,246	Plus 5% downpayment	\$4,081	Plus 5% downpayment	\$2,550
<b>PROJECTED</b>		<b>PROJECTED</b>		<b>PROJECTED</b>	

---

AFFORDABLE HOME \$102,020    AFFORDABLE HOME \$81,616    AFFORDABLE HOME \$51,009

---

Under the three scenarios examined in the table, median income households could afford the median home valued at \$102,020. Those, however, earning 80% or 50% of the median household income could not afford such a home.

The last two measures examined here to complete the picture on housing conditions and the ability of residents to maintain their homes are as follows: (1) duration of occupancy (longtime occupancy indicates older residents; and (2) age of home owners.

**TABLE 16:  
DURATION OF OCCUPANCY, 1980 - 2000**

Number of Years in Unit	1980		1990		2000	
	# of Units	% of Total	# of Units	% of Total	# of Units	% of Total
Up to 20 years	285	87%	294	67%	445	79%
20 years or more	41	13%	142	33%	118	21%

SOURCE: US BUREAU OF THE CENSUS

A fairly large percentage of the housing stock examined is occupied by people who have been in that unit for 20 years or more; that not only denotes the possibility of elderly residents, but also of a stable community – evidenced even more so by the increase of that group over time, from 13% in 1980 to 21% in 2000.

Data on ownership by age, on the other hand, might seem to contradict this, since most of the units are owned by people between 35 and 54 years of age; although it is certainly possible that this age group could have resided for at least 20 years in their homes. The two tables do show, however, that while many units are occupied by long-term residents, most homes are owned by people who are presumably still in the labor force.

**TABLE 17:  
OCCUPIED UNITS BY AGE, 2000**

	# of Units	% of Total
15-34 years	98	18%
35-54 years	319	57%
55-64 years	64	12%
65 years and over	75	13%

SOURCE: US BUREAU OF THE CENSUS

**C. SUBREGIONAL HOUSING COMPARISONS**

Housing data for the subregion is compared to see how the towns compare relative to the provision of various types of housing. The table following presents the comparison of total housing supply for Greenfield and its subregion from 1980 to 2000, the percentage change from each decade, and each town’s share of the subregional population. This information is also graphed, to the extent that the graphs are visually meaningful, with the amount of information being depicted.

**TABLE 18:  
SUBREGIONAL HOUSING TRENDS, 1980 – 2000**

<b>ABSOLUTE NUMBER OF UNITS</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
<b>GREENFIELD</b>	370	517	640
Bennington	347	643	635
Francestown	325	580	656
Lyndeborough	370	488	587
Temple	252	429	465
Peterborough	1,952	2,242	2,509
Hancock	495	723	814
<b>TOTAL HOUSING UNITS</b>	<b>4,111</b>	<b>5,622</b>	<b>6,306</b>
<b>PERCENTAGE CHANGE</b>	<b>1980-90</b>	<b>1990-00</b>	<b>1980-00</b>
<b>GREENFIELD</b>	39.7%	23.8%	73.0%
Bennington	85.3%	-1.2%	83.0%
Francestown	78.5%	13.1%	101.8%
Lyndeborough	31.9%	20.3%	58.6%
Temple	70.2%	8.4%	84.5%
Peterborough	14.9%	11.9%	28.5%
Hancock	46.1%	12.6%	64.4%
<b>PERCENTAGE OF TOTAL UNITS</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
<b>GREENFIELD</b>	9.0%	9.2%	10.1%
Bennington	8.4%	11.4%	10.1%
Francestown	7.9%	10.3%	10.4%
Lyndeborough	9.0%	8.7%	9.3%
Temple	6.1%	7.6%	7.4%
Peterborough	47.5%	39.9%	39.8%
Hancock	12.0%	12.9%	12.9%

SOURCE: US BUREAU OF THE CENSUS

The information presented in Table 18 is fairly consistent with the population statistics presented earlier in this report; namely, most of the growth seen in this region - in terms of both population and housing, occurred in the 1980s. And, that growth was dramatically less in the 1990s – in fact; Greenfield had a negative change in housing supply. In terms of distribution of subregional housing units, Greenfield ranks third among the six towns – after Peterborough is excluded, since its numbers are so much higher than the other towns. Hancock has the most number of housing units, and Temple has the least, which is consistent with the population distribution among these six towns.

**D. HOUSING NEEDS ASSESSMENT**

The enabling statute that addresses the development of Master Plans (RSA 674:2) requires that the housing section address current and future housing needs of all residents, at all income levels, of the town and the region in which it is located. In order to do that, opportunities for housing development in Greenfield are examined, as well as population projections that give some indication as to what the town can expect in terms of housing needs for new population.

**Housing Opportunity**

In this section, the zoning provisions for Greenfield are reviewed, as they relate to opportunities for various housing types in the town, specifically which types are permitted and what the minimum lot requirements for those dwelling units are. Greenfield has four zoning districts that accommodate residential development. Examination of the Greenfield zoning ordinance reveals the following provisions that deal with the availability of housing:

**TABLE 19:  
HOUSING OPPORTUNITIES IN GREENFIELD**

<b>ZONING DISTRICT</b>	<b>PERMITTED HOUSING TYPES</b>	<b>LOT AND YARD STANDARDS</b>
Business District	<ol style="list-style-type: none"> <li>1. Single Family Dwellings – Permitted by right.</li> <li>2. Accessory Apartments – Permitted by Special Exception.</li> <li>3. Multi-Family (up to 25 units, only for HUD-eligible elderly).</li> </ol>	<ul style="list-style-type: none"> <li>◆ 1 ½ acres with 150 feet of frontage</li> <li>◆ 50-foot front setback</li> <li>◆ 25-foot side &amp; rear setback</li> </ul>
Village District	<ol style="list-style-type: none"> <li>1. Single Family Dwellings – Permitted by right.</li> <li>2. Accessory Apartments – Permitted by Special Exception.</li> </ol>	<ul style="list-style-type: none"> <li>◆ 2 acres with 250 feet of frontage</li> <li>◆ 100-foot front setback</li> <li>◆ 50-foot side &amp; rear setback</li> </ul>
General Residence	<ol style="list-style-type: none"> <li>1. Single Family Dwellings – Permitted by Right.</li> <li>2. Multi-Family, up to 4 units – Permitted by Right.</li> <li>3. Manufactured Housing</li> </ol>	<ul style="list-style-type: none"> <li>◆ 2 acres with 250 feet of frontage</li> <li>◆ 100-foot front setback</li> <li>◆ 50-foot side &amp; rear setback</li> </ul>
Rural/Agricultural	<ol style="list-style-type: none"> <li>1. Single Family Dwellings</li> </ol>	<ul style="list-style-type: none"> <li>◆ 4 acres with 350 feet of frontage</li> <li>◆ 100-foot front setback</li> <li>◆ 50-foot side &amp; rear setback</li> </ul>

\* In addition to the above housing provisions, elderly housing is permitted in all districts subject to special exception approval by the Board of Adjustment.

SOURCE: TOWN OF GREENFIELD ZONING ORDINANCE

### **Future Housing Need**

In order to estimate what the potential need for housing will be in the future, the available data on housing characteristics and population growth must be reviewed along with estimates for growth in population, and therefore housing need. Between 1990 and 2000 the increases in both housing stock and population were very close – 8% and 9.1%, respectively, indicating that population growth did not outstrip housing need over this time period. Further, the Census data show that, in general, Greenfield’s housing stock is in good condition and the incidence of overcrowding of dwelling units is very low.

The NH Office of State Planning population projections can be used to estimate future housing need, based on a person per unit estimate. The projections for Greenfield and surrounding towns are presented below in five-year intervals up to the year 2025, beginning with the Census count from the year 2000.

**TABLE 20:  
SUBREGIONAL POPULATION PROJECTIONS**

	2000	2005	2010	2015	2020	2025	# Increase 2000-25	% Change 2000-25
<b>GREENFIELD</b>	1,657	1,760	1,880	1,980	2,070	2,150	493	29.8%
Bennington	1,401	1,490	1,590	1,670	1,750	1,820	419	30.0%
Francestown	1,480	1,610	1,740	1,850	1,960	2,050	570	38.5%
Hancock	1,739	1,790	1,900	1,990	2,080	2,150	411	23.6%
Lyndeborough	1,585	1,720	1,850	1,950	2,050	2,140	555	35.0%
Peterborough	5,883	6,250	6,630	6,940	7,250	7,500	1,617	27.5%
Temple	1,297	1,420	1,510	1,590	1,660	1,720	423	32.6%

SOURCE: NH OFFICE OF STATE PLANNING, MARCH 2003

The average population projection for this area is less than that experienced by these towns from 1980 to 2000 (42.6% for the past 20 years, with 31% projected for the next 25 years). For Greenfield individually, however, the projected increases are less than half of what the town experienced over the last 20 years 70.5% from 1980 -2000, with 29.8% projected for the next 25 years).

Greenfield’s future housing need is estimated based on this projected population by dividing population by housing units to reach a person per unit figure. A person per unit figure can be calculated for the past decades (in 1980 it was 2.62; in 1990 it was 2.94; and in 2000 it was 2.59). In order to calculate future housing need, a reasonable person per unit figure for the future must be assumed; in this case, since the figure fluctuated up and then down, a simple average will be used here, which is 2.72 out to the year 2025. The following calculations will use two possible scenarios: one using the OSP projected population increase over the next twenty-five years (rounded to 30%); the other using the known past population increase between 1980 and 2000 (rounded to 70%).

<b>Population Increase</b>	<b>Projected Population</b>	<b>Persons/ Unit</b>	<b>= Total Housing Units</b>
30%	2,150	2.72	790
70%	2,817	2.72	1,036

Thus, if Greenfield were to experience the same level of population growth between now and the year 2025 as it did between 1980 and 2000 the need for housing units would increase from the current 640 to 1,036 - an additional 396 units; over twenty-five years this would mean approximately 16 units per year. Compared to the 270 units that were added over the previous 20 years (13.5 annually), this projection would appear to be manageable, based on past performance. If, on the other hand, the OSP projections were correct, the Town would expect an increase of 150 housing units, or 6 units per year for twenty-five years, which would amount to about seven less than the average of the last 20 years. Given either scenario, it seems reasonable to expect the town to be able to accommodate these projected housing increases.

Nevertheless, there are other housing issues to be considered that are not addressed by the current zoning provisions; in particular, the availability of housing for the elderly. Based on updated national Census information, the country can expect to see a dramatic increase in the number of elderly residents (those aged 65 and over); in fact, by the year 2010, this number could increase from 1 in 8 to 1 in 5 persons.

This fairly rapid increase in the elderly population is not only expected to increase the level of effort needed by society as a whole to support publicly-funded retirement programs, health care and social welfare agencies, but strains will also be experienced due to changing family structures - that is, more and more, the profile of the elderly is one of increasing numbers who have either never married, or have married and divorced, and have fewer children to call on for assistance; either they never had children, or the children have moved away for career/employment reasons. Contributing to the isolation from a family network is also the geographic isolation caused by our development pattern that depends so greatly on the automobile. All of these factors have the potential to interfere with the desire to “age in place”, that is, to be able to live out the remainder of one’s life in the same town one calls home.<sup>10</sup>

At this time, the elderly population in Greenfield amounts to less than 7% of the total population of the town; granted, this is not a significant proportion of townspeople, but as Table 3 illustrates, it does represent an increase since 1980 and, based on the national trend data, it is expected to increase up through the year 2010. However, as important as the existing elderly population, is the potential for the large group of middle-age residents of Greenfield needing to provide care for aging parents - in the form of on-site housing accommodations. Therefore, the Planning Board recognizes the need to examine these issues at this time and prepare for future situations.

Part of the problems faced by towns when attempting to respond to these kinds of housing needs are limitations created by the town’s own zoning ordinance. As the earlier review of Greenfield’s zoning ordinance illustrated, there are currently a limited variety of housing types available in

<sup>10</sup> “Planning and Zoning for an Aging Population”, by Alan. C. Weinstein; ZONING AND PLANNING REPORT Vol. 19, No. 10 November 1996

Greenfield - essentially single family, two-family and manufactured housing, a separate structure on the property, or above a garage, for example; the options are up to the town to determine.

Specific to elderly accommodation, there are two ways to employ this use: (1) the elderly residents remain in the primary dwelling and rent out the accessory apartment, thereby supplementing their income and enabling them to stay in the home; or (2) children of elderly parents can bring them to their home and set them up in an accessory apartment, which provides the elderly with needed care without requiring them to move into a nursing home or assisted living situation.

Aside from the elderly issue, the provision of accessory apartments adds to the range of available housing types for other segments of the population, for example, with the declining household size indicated by the Census data, there will presumably be more need for smaller living units for single persons or couples with no children.

♦ **Temporary Elderly Housing**

The idea behind temporary housing for the elderly is that, not unlike the accessory apartment concept, it allows a child (or other) to provide affordable housing and services for an elderly parent or relative who, in turn, retains privacy and independence. This housing is typically provided in the form of a manufactured home on the same lot as the caregiver, subject to certain conditions, for example, that following the death of the parent or relative, the unit would be removed within a certain specified period of time.

♦ **Group Shared Housing**

Also known as “congregate housing”, this method allows a number of unrelated elderly persons to live together as a housekeeping unit. And, depending on the age and degree of disability of the residents, this may or may not include on-site services by trained staff or health care professionals.

The Greenfield zoning ordinance currently limits a single household unit to either people who are related by blood, adoption or marriage, or to no more than four unrelated persons. This provision would deter congregate elderly housing, since a certain “critical mass” of people would be necessary in order for the arrangement to be economically feasible. Furthermore, courts have increasingly struck down such restrictions on household composition in favor of what are considered to be “functional families.”

Other zoning techniques that can be used to increase housing availability are to permit multi-family dwellings in the Village area, and to allow mixed uses in the Village area, for example, to permit residential and commercial uses by right in the same building or on the same lot. The question of multi-family development in the Village is presently limited by fairly severe septic constraints. However, the Town is involved in a Feasibility Study at this time to determine the extent of the problem and the possibility of constructing a municipal septic system that would serve the Village area. Should this come to pass, the Planning Board and the Town can reexamine the question of multi-family use.

In conclusion, the availability and affordability of housing should be monitored carefully, and the estimated need adjusted as new information is obtained. As a result of the information and

analysis presented in this section, the Planning Board offers the following as strategies to be considered by the town in addressing the housing issue on an on-going basis:

1. Investigate the possibilities of obtaining Community Development Block Grants for the rehabilitation and repair of existing substandard units in the housing stock.
2. Consider the feasibility of amending the zoning ordinance to permit congregate housing for elderly.
3. Consider the feasibility of amending the zoning ordinance to permit accessory apartments in all districts, subject to certain conditions.
4. Consider the feasibility of amending the zoning ordinance to permit the Selectmen to grant temporary permits for the placement of manufactured homes on occupied lots for the purpose of caring for elderly parents or relatives, subject to the removal of those units after the death of the inhabitant.

# LAND USE ANALYSIS

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# LAND USE

## I. INTRODUCTION

A land use analysis is an important element of community planning. Once raw land is converted to a particular use, it is usually committed to that use for a very long time, if not indefinitely. It is extremely difficult to change a pattern of development once it takes hold. Therefore, decisions about future land use should be made carefully, with a studied eye to the potential ramifications of those uses. A well-conceived land use plan allows for new growth and development while it protects and preserves the integrity of neighborhoods, businesses, transportation routes, and the environment.

This chapter describes the pattern of existing land uses in Greenfield and analyzes the changes that have taken place in the land use pattern since 1985, the date of the last Master Plan for Greenfield. Maps are used to identify the areas of town that have been developed, the kind of development that has occurred, and the relationship of one land use to another. This information provides the baseline necessary to evaluate the appropriateness of future development and the availability of suitable land for such development.

The development of a land use plan forms the basis of land use regulations, which are effected through zoning ordinances, subdivision and site plan review regulations. The land use plan describes the goals and objectives envisioned by the town; the regulations are the means to put these goals and objectives into place. For instance, if in the process of describing present land use patterns in Greenfield, recommendations are made to encourage more commercial activity in a particular area, the zoning ordinance should be amended to permit that kind of activity in that location - if it does not already do so. Or, by the same token, the land use plan might recommend that the zoning ordinance be made more restrictive in particular areas, for the purpose of protecting and preserving certain natural features in town.

## II. LAND USE CATEGORIES

The first step in the land use analysis is to classify the various land uses that exist in Greenfield. A classification system describes these activities. The second step is an analysis of tax assessing data from Greenfield using Geographic Information System (GIS) technology. Existing land uses and activities are recorded on a map to illustrate an interpretation of the land use pattern.

In general, land is classified according to its physical characteristics and/or the present activity that occurs on it. The two major divisions in a land use classification system are "Developed" and "Undeveloped" uses. Each of these divisions can be further subdivided into specific land uses. The following is a listing and description of the standard land uses categories used to prepare a Land Use Plan:

- ◆ **Residential:** All land and/or structures used to provide housing for one or more households. These include site-built single family homes, manufactured homes (previously known as mobile homes), factory-built modular homes, duplexes, apartment buildings, condominiums, and seasonal residences.

- ◆ **Government/Institutional:** Establishments and facilities supported by and/or used exclusively by the public or non-profit organizations, such as fraternal, religious, charitable, educational and governmental facilities.
- ◆ **Agricultural:** Lands that are utilized for the cultivation of crops, the raising of livestock and poultry, and nurseries for horticultural purposes.
- ◆ **Commercial:** All lands and structures that supply goods and/or services to the general public. This includes such facilities as restaurants, motels, hotels, service stations, grocery stores, furniture and appliance sales, as well as establishments which are primarily oriented to providing a professional and/or personal service to the public, such as medical offices, banks and financial institutions, personal care establishments, etc.
- ◆ **Industrial:** Land and/or facilities used for mining, construction, manufacturing, treatment, packaging, incidental storage, distribution, transportation, communication, electric, gas and sanitary services, and wholesale trade.
- ◆ **Home-Based Business:** A residential property that houses a home occupation or home-based business. The residence continues to be the principle use of the land, and the occupation is by definition secondary and incidental.
- ◆ **Road network:** All public and private rights-of-way that are designated for carrying vehicular traffic. This includes Class VI roads that are no longer maintained by the town and do not carry public traffic.
- ◆ **Protected Lands:** Included in this category are all federally-owned lands, all State parks and forests, land protected under the State Land Conservation Investment Program (LCIP), land protected and/or owned by the town, sensitive land and wildlife habitats protected by the NH Audubon Society, land held by the Society for the Protection of NH Forests and the Monadnock Conservancy.
- ◆ **Undeveloped:** All lands that are not developed for any of the above uses, regardless of the reason - whether it be because the land is not usable due to environmental constraints, or there has been no demand to develop.

### III. FACTORS THAT INFLUENCE LAND USE

Various factors influence growth and development in a town. The major physical and topographic features are the primary factors that influence the initial as well as the subsequent development of land. Secondary factors usually consist of man-made features such as roads, railroads, utilities and major commercial, industrial or recreational facilities that attract and/or stimulate new or expanded development. The following factors have played an important role in the development of Greenfield:

### **Waterfront Development**

Greenfield is home to several major waterbodies; Hogback Pond, Otter Lake, Powder Mill Pond, Sunset Lake, Mud Pond and Zephyr Lake. These waterbodies are classified by the NH Department of Environmental Services as Public Waters, which means that they are subject to the State's Comprehensive Shoreland Protection Act (RSA 483-B). This law was enacted in 1991, and establishes standards for the subdivision, use and development of the land around the state's public waters, defined as all land located within 250 feet of the water.

Although Greenfield is home to these waterbodies, only a limited amount of residential development has occurred around them, with the exception of Sunset and Zephyr Lakes. High density residential development has occurred along portions of these two lakes. The limited amount of development along the other waterbodies is due to the efforts of the Town to protect the quality of these waters. The Town owns a small parcel on the western shore of Sunset Lake as well as a parcel on the east shore of Zephyr Lake, and Hogback Pond. Mud Pond and a portion of Otter Lake are located within Greenfield State Park. Nonprofit institutions such as the Barbara C Harris Camp and conference center and Crotched Mountain own large parcels on Otter Lake and Sunset Lake. There is a boat launch area on the south side of Forest Road owned by the State.

### **Transportation Systems**

Settlement in Greenfield has been influenced by three major roads; NH Route 136, Forest Road, and NH Route 31. Major Collectors are designed to move medium traffic volumes at medium speeds between or within communities. They differ from the Arterial system in that collector streets go through residential neighborhoods, distributing traffic from the arterials through the area to its ultimate destination. Minor Collectors provide alternate routes to Major Collectors.

Within Greenfield Route 31 (Sawmill Road), Forest Road, and Route 136 are classified as Major Collectors. There are no Arterials or Minor Collectors in Greenfield.

The other transportation system that influenced the settlement pattern of Greenfield is the railroad, which runs across town from the southeast to the northwest. Until the summer of 1986, Greenfield was served by the Hillsborough Branch of the Boston & Maine Railroad, which provided freight service to and from local industries. The railroad initially served a much greater role in moving people and goods around and through Greenfield than did the road network. Thus, the demise of rail travel and the establishment of major transportation routes outside of Greenfield's boundaries set in place certain parameters that have dictated the rate and type of development experienced in Greenfield over the last several decades. Another factor that could change the landscape in Greenfield and elsewhere is the introduction of telecommuting, which does not require concrete and asphalt for people to travel to their places of work. The effect this is having on the development pattern in Greenfield remains to be seen.

### **Topography & Soils**

To some extent, topography and soils also play a role in any town's development. Historically, people built houses and roads on land that was most easily accessed; and soil type and characteristics influence what kind of development will occur - farming, for example, and where that development will take place.

The topography of Greenfield is dominated by Crotched Mountain in the north and North Pack Monadnock in the south. Crotched Mountain lies in the three towns of Greenfield, Bennington, and Frankestown. The mountain's highest elevation is actually in Frankestown (2,020 feet above sea level); in Greenfield the highest elevation is 1500 feet, in the northeasterly corner of the town, going down to 900 feet at Sunset Lake.

North Pack Monadnock has the highest elevation in town, ranging from 1,300 feet at Mountain Road up to over 2,200 feet at the highest point just north of the Temple town line.

Gould Hill in the south-central part of town and Blanchard Hill on the eastern side of town are two other concentrated areas of high elevation, although they do not exceed 1,200 feet. The western and central parts of town have the lowest elevations, ranging from 700 to 900 feet above sea level.

#### **IV. EXISTING LAND USE**

An analysis of the present land use pattern in a town is one of the first steps in the formulation of a Land Use Plan. Since the type and intensity of existing land uses have a strong influence on future development patterns, it is important to understand how land and other resources are used within a given area before recommendations can be developed relative to future land uses.

##### **A Brief History**

The Development of the Town of Greenfield's land has gone through several changes as economic emphasis has shifted from one period to another. Greenfield was first settled around 212 years ago, and for the next one hundred and fifty years the Town, like so many of its neighbors, was primarily an agricultural community. By the mid-1800's, over 80% of Greenfield's land was cleared and used for grain and hay fields, pastures, orchards, and vegetable gardens. Dozens of dairy and poultry farms shipped large quantities of milk and eggs as far as Nashua and Boston. Other products shipped included apples, potatoes, cordwood, and lumber.

By the early 1900's, America had developed an extensive and efficient system of railroads. This, coupled with advances in refrigeration, enabled perishable agricultural products to be shipped long distances. Greenfield's dairy farms, working the rocky and hilly New Hampshire soils, found themselves competing with the agriculturally rich Midwest. It was a competition they couldn't meet and gradually the farms were abandoned.

Because of the lack of swift rivers and brooks necessary for the water-powered mills of the 1800's, Greenfield never developed a large industrial base. There were, from time to time, many small mills, but their primary purpose was to support the needs of the local community. The railroad came to Greenfield in 1874, but almost all of its freight traffic was agriculturally related.

The automobile oriented economy of today has changed many of the traditional development patterns of the past. Old mansions have become tourist homes; businesses have infiltrated residential areas; and road intersections are often dominated by gasoline stations. Businesses oriented to the highway traveler follow the approach roads to the community, crowding on right-of-way originally laid out for "horse and buggy" use, and now oftentimes inadequate for the increasing volumes of automobile traffic.

As the commercial and industrial centers of its neighboring towns of Peterborough and Jaffrey, as well as cities to the east, grew and prospered, Greenfield began to change from a New England farming and mill town to a suburban “bedroom” community and recreationally oriented area. This is the character of Greenfield as it is today.

### **Greenfield’s Land Use**

Analysis of the *Existing Land Use* map found on the following page verifies the pattern of development described above. Note that the residential uses occurring in Greenfield’s town center, with later residential development and most of the subdivisions locating on the roads leading out of Town, suggests that the more recent growth has been related to commutation to nearby towns. The center of Town is where many of the public buildings and much of the older housing is located. This concentration was undoubtedly the nucleus of an agrarian society developed around local farms and functioning as the hub of the community until later changes including institutional, recreational, and second home uses moved much of the land uses out of the center.

Greenfield has a land area of approximately 26.2 square miles, or 16,778 acres. Surface water accounts for approximately 350 acres. Of this land area, roughly 31 percent is presently developed for one of the uses described earlier in this text.

A review of the *Existing Land Use* map in terms of specific uses indicates the following:

***Agricultural*** – Although primarily a suburban town, Greenfield has some 21 acres of land devoted to farming in many of its forms. These are scattered throughout town in several concentrations such as the Blanchard Hill section and areas just outside the center of Town. The number of acres of land devoted for agricultural use has decreased from 600 acres in 1980 as reported in the 1986 Master Plan. In Greenfield, as in most of the towns in the region, there are individual garden plots servicing the needs of local homeowners. These uses have not been considered of major agricultural significance in documenting the land use in this chapter of the Master Plan.

***Residential*** – Residential development in Town is mostly single family detached homes and manufactured housing, with an infrequent occurrence of two family and multi-family housing. Also of significance in terms of concentrated residential development are the areas around Sunset and Zephyr Lakes where residential density is higher than in other parts of Town. In general, residential use occurs along the existing road network and is devoted to Single family homes. Approximately 1,326 acres of Greenfield’s land is in residential use, which is a 342% increase since 1980.

***Commercial/Industrial*** – The major concentration of commercial and industrial uses is located in and around the town center. There is a limited amount of commercial development found along NH Route 31 in the southern portion of Town. The number of acres devoted to these uses has increased from 7 acres in 1980 to 36 acres in 2003.

***Government/Institutional*** - Government/institutional uses are generally concentrated in the village center and are represented by the Town Office Building, the Fire Station, the Meeting House, and the Post Office. These uses are identified on the *Existing Land Use Map* as being tax exempt. The schools, cemeteries, and the large tracts used by the Crooked Mountain Rehabilitation Center, Brantwood Camp and Lyris, and by Barbara C. Harris Camp and

Conference Center are also included in this land use category. Some of these are considered mixed uses, such as the Camp Union area which operates both as an “educational” facility and a “recreational” area.

**Recreational** – Greenfield’s 2003 tax assessing data does not include recreational uses as a separate land use category. Recreational uses are incorporated in the Exempt categories (municipal, state, and federal). Recreational land in Greenfield includes the fairgrounds, the elementary school playground, a part of North Pack Monadnock Mountain, the Greenfield State Park, the beaches of Sunset and Zephyr Lakes, and several private camps.

**Roads and Highways** - Roads and highways, while not typically thought of as a "use" per se, do take up nearly 370 acres of land.

Attempting to calculate exact acreages for land uses - particularly residential usage, is difficult and time-consuming. Therefore, a commonly-used methodology is to simply assume two acres per each dwelling unit or use other than government/institutional, farmland, and vacant land. For residential uses, this takes into account that multi-family units will typically occupy much less than an acre and most single family homes much more than an acre. It is common for more of a lot to be taken up by a non-residential use than is generally observed for residential uses. The analysis of existing land use in Greenfield in 2003 was performed using Geographic Information System (GIS) technology with 2003 tax assessing data from the Town. The 2003 tax assessing data from the Town of Greenfield breaks land uses into the following categories:

- ◆ 1F Residential Waterfront
- ◆ 1F Residential
- ◆ 2F Residential
- ◆ 3F Residential
- ◆ 4F Residential
- ◆ Commercial
- ◆ Exempt – Municipal
- ◆ Exempt - Nonprofit
- ◆ Exempt – Federal
- ◆ Exempt – State
- ◆ Farmland
- ◆ Managed Hardwoods
- ◆ Managed Other Woods
- ◆ Managed White Pine
- ◆ Unmanaged Hardwoods
- ◆ Unmanaged Other Woods
- ◆ Unmanaged White Pine
- ◆ Wetland

The managed and unmanaged forest land categories have been combined into one category called undeveloped land. The land area taken up by roads and highways is calculated by assuming a 50-foot right-of-way, multiplied by the number of miles of road.

This methodology was used to develop the 2003 portion of the following table. An attempt has been made here to compare the uses of land in 1980 to that of 2003. A direct comparison, however, is not possible, due to differences in methodology. The largest percentage by far of

land in Greenfield remains undeveloped and, based on certain criteria, remains undevelopable. The table below compares the estimates of land use between 1980 and 2003.

**Existing Land Use in Greenfield, 1980 and 2003**

LAND USE	TOTAL ACRES		% OF DEVELOPED LAND		% OF TOTAL LAND	
	1980	2003	1980	2003	1980	2003
<b>DEVELOPED:</b>						
Residential I (all classes)	300	1,326	9.2	25.9	1.8	7.9
Commercial/Industrial	7	36	0.2	0.7	.04	0.2
Government/Institutional	962	--	29.4	--	5.7	--
Exempt (Municipal, State, & Federal, Private/Institutional)	--	3,169	--	62.0	--	18.9
Recreational	1,025	--	31.3	--	6.1	--
Agricultural	600	211*	18.3	4.1	3.6	1.3
Roads and Highways	377	370	11.5	6.8	2.2	2.2
<b>TOTALS</b>	<b>3,271</b>	<b>5,112</b>	<b>100</b>	<b>100</b>	<b>19.4</b>	<b>30.5</b>
TOTAL LAND AREA	16,778	16,778			100	100
TOTAL DEVELOPED LAND	3,271	5,112			19.4	30.5
TOTAL SURFACE WATER	350	350			2.1	2.1
<b>TOTAL UNDEVELOPED LAND</b>	<b>13,157</b>	<b>11,316</b>			<b>78.5</b>	<b>67.4</b>

\* - Data from 2/3/03 Current Use Report

Sources: 1985 Master Plan for Greenfield, 2003 Tax Assessing Data from the Town of Greenfield

As can be seen from the preceding table, the greatest use of land in Greenfield in 2003 is land that is exempt (municipal, state, and federal), which is about 62% of the developed land and 19% of the total land area. The Town owns many large parcels throughout town, the State of New Hampshire owns the land in Greenfield State Park as well as some parcels in the northeast portion of town, and the federal government owns a very large parcel that borders the Town of Temple which is part of North Pack Monadnock Mountain.

The next greatest use of land is residential, which is approximately 26% of the developed land in Town and about 8% of the total land area. The Town should carefully weigh the implications of an overabundance of residential development as regards its impact on the Town's financial structure. It should be noted that much of the land in Greenfield is either exempt from taxes or under "current use" status. Although there is little doubt that the Town will continue to be a residentially-oriented community, and greatly influenced by existing recreational and institutional uses, consideration should be given to means by which the demands for town services generated by additional residential development can be offset.

The Current Use Taxation program was enacted in 1973 to promote the preservation of open land in the state by allowing qualifying land to be taxed at a reduced rate based on its current use value as opposed to a more extensive use. The minimum land area currently needed to qualify is ten

acres. The price of this favorable treatment is a 10 percent penalty tax (10% of the sale price) when the property is later changed to a non-qualifying use.

In comparing conservation easements to current use taxation, easements are permanent, while current use may be reversed by change to a non-qualifying use and payment of the Use Change Tax. Thus, current use may satisfy the goals of a landowner who cannot afford to permanently abandon future development value, but desires current property tax relief. If it becomes financially necessary to subdivide, the use change tax becomes an element of the development costs.

In Greenfield, the monies collected from the Use Change Tax (10% of the sales price of a piece of land taken out of current use and sold for development) goes to the Conservation Commission for the acquisition of land and/or conservation easements. The Town of Greenfield has a total land area of 16,778 acres, of which 4,904 (29%) are in current use, as of 2003.

The current use designation, authorized by RSA 70-A, provides the town other benefits as well: it encourages landowners to maintain traditional land-based occupations such as farming and forestry; promotes open space, preserving natural plant and animal communities, healthy surface and groundwater; and provides opportunities for skiers, hikers, sightseers, and hunters.

**V. LIMITATIONS TO DEVELOPMENT**

The data concerning the existing land use pattern reveals that roughly 31 percent of Greenfield's total land area is currently developed, leaving some 11,316 acres undeveloped. Not all of this land, however, is suitable for development. Limiting factors to development include steep slopes, certain soil types, wetlands, aquifers, floodplain areas, and other sensitive lands or features. In addition to these physical constraints, development is limited by the public's desire to protect the quality of life and property values of existing residents. This public will is ideally expressed in the Town's land use regulations, and is the central purpose of this planning document.

Four maps have been created using Geographic Information System technology showing limitations to development in Greenfield: *Stratified Drift Aquifers, Steep Slopes, Wetlands & Hydric Soils, and Development Constraints*. The *Development Constraints* map can be found on the accompanying page. These maps identify seven limitations to development that are related to the ability of the soil to accommodate septic systems, road or building construction.

<b>Limits to Development</b>				
<u>Constraint</u>	<u>Total Acres</u>	<u>% of Total Land Area</u>	<u>Undeveloped Acres</u>	<u>% Undeveloped Area</u>
Total land area	16,778	--	10,987	--
Slopes greater than 15%	5,254.5	31.3%	1,057.1	9.6%
Poorly/very poorly drained soils (Hydric soils)	2,590.7	15.4%	533.3	4.9%
Wetlands	364.2	2.2%	13.1	0.1%

Floodplain	1,036.3	6.2%	149.1	1.4%
Aquifer	5,354.6	31.9%	941.4	8.6%
Shallow to bedrock soils (Less than 40 inches)	3,259.9	19.4%	474.0	4.3%
Shallow to water table (Less than 1.5 feet)	1,069.7	6.4%	1,071.9	9.8%

Source: SWRPC Geographic Information System

Reference to the maps illustrates that one or more of these development constraints exists virtually all over town. There are in fact, only a few areas on the map that appear to have no limitations at all. It is interesting to note that the built up area of the village center is one of the areas in town with few limitations to development which was probably a primary reason why the area was in fact built out. The northern and southern sections of Town have many steep slopes due to the location of Crotched Mountain in the north and North Pack Monadnock Mountain in the south.

In comparing limitations to development to the *Existing Land Use Map*, it can be seen that, while the development does follow almost every road in town, the areas shown as having the greatest constraints have not been developed. How much of this pattern is due to the natural constraints of the land or to other factors such as road access is not known.

Through thoughtful and intelligent planning and zoning, the Town can direct new growth into areas best suited to each class of land use. Through such advance knowledge of what the areas will support in the way of development, Greenfield can consider, in advance, the need for roads, utilities, and community services and facilities.

# FUTURE LAND USE PLAN

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# FUTURE LAND USE PLAN

## I. INTRODUCTION

Land is Greenfield's most basic resource. As such, its use determines the character and quality of community life. The rate of growth, type and location all directly affect the physical appearance of the Town, the need for certain public services and facilities, and the cost of providing these services. Change is inevitable so Greenfield must be prepared to face future development.

Thus, in creating a Master Plan to guide Greenfield's growth, it is the Future Land Use Plan that is the core of a comprehensive planning program. It is this document that reflects the best thinking and wishes of Greenfield residents regarding all future development in Town.

Certain assumptions are made in anticipating future development in Greenfield. Based on the data collected and analyzed in the preceding sections:

- ◆ If the past 20 years can serve as an indicator, Greenfield should continue to experience a moderate rate of growth in population.
- ◆ A caveat to the assumption above, however, is the high proportion of seasonal housing around Sunset and Zephyr Lakes. If occupied year-round, this would have the potential to impact the Town, in terms of population density around sensitive shorelands, increased numbers of school children, and demand for police, fire, highway, and other municipal services.
- ◆ The road network in and through Greenfield will remain unchanged over the next 10-15 years, aside from regular maintenance and improvements. The roads carrying traffic through Greenfield, i.e., Routes 31 and 136 and Forest Road, will continue to serve as subregional major collectors.
- ◆ Greenfield residents will continue to participate at a high level in the labor force and regional economy; managerial and professional occupations will expand, with increased reliance on telecommuting.
- ◆ Agriculture will not be a notable land use, nor will it be a significant contributor to the local economy.

## II. GOALS, POLICIES, AND OBJECTIVES

In any planning process, it is inevitable that some goals will conflict with others. Residential and commercial development, for example, invariably conflicts with agricultural use and open space preservation. One of the purposes of this Plan is to set policies and establish clear objectives, where appropriate, that will guide future growth in a manner that best accommodates both protection and development.

In small towns such as Greenfield, it is sometimes more appropriate to base future land use decisions on development policies, rather than specific objectives. In such towns, where future

growth is not anticipated in large numbers, the form in which most growth takes place is the development of individual properties. The Plan, then, expresses a general concept of development and is considered to be a realistic means of managing future growth.

### Land Use

Overall, land use patterns in Greenfield are dominated by residential development of mostly single family detached homes and manufactured housing, with an infrequent occurrence of two family and multi-family housing. Also of significance in terms of concentrated residential development are the areas around Sunset and Zephyr Lakes where residential density is higher than in other parts of Town. This general pattern is not expected to change, although the Planning Board is very concerned about development occurring in a sprawling pattern along the roads throughout town. Agriculture, which continues to be a concern, both for the economic activity as well as for the protection of the prime farmlands, does not play a significant role in the local economy. It is unlikely that this will change in the foreseeable future, due as much to national trends in farming as to anything else. Therefore, how far land use regulations can or should go to protect farmland that is not being farmed must be carefully considered.

### Community Facilities

Based upon the information collected in the Basic Studies section, Greenfield currently meets the community facilities needs of its residents, and expects to do so into the near future. The most significant changes, since the 1985 Master Plan, are the complete renovation of the former elementary school on Sawmill Road for use as town offices in 2001, and the construction of a new elementary school on Forest Road in 1999. Funds were appropriated at 2001 Town Meeting to construct an addition onto the Fire House which will add one bay, two deep, a meeting room, and an Emergency Communication Room. A substantial addition is planned for the Library that will double useable space, add handicapped bathrooms, computers, an expanded Children's Room, staff workspace, and more shelving and stack space. The other town departments appear to be in good shape.

The Town could, however, expect to have a large proportion of its population in need of services for seniors. Reference to the *Population and Housing Analysis* illustrates that the largest age category as of 2000 was the 20-44 year-olds. As they work their way up the pyramid (other factors such as out-migration, etc, notwithstanding) in 20-30 years the age structure in Greenfield could look quite different.

The potential impact of the current New Hampshire education crisis on Greenfield's school system and tax rates is still very uncertain. Money to fund education in New Hampshire comes primarily from local property taxes. Costs for education are currently at the center of a major state-wide debate, in the Court as well as in the Legislature. The Legislature has authorized a state education tax that collects money in the form of a surcharge on property tax and disburses it to towns that meet the criteria for need. This tax has been in place for two years, but is the subject of challenge, and it is unclear at this time what the result will be.

It is expected that the voters of Greenfield will continue to support the varied local and regional educational, historic and cultural activities, as well as health-care.

### **Economic Development**

The existing land use analysis demonstrates that Greenfield has a limited amount of commercial or industrial development. Greenfield is predominantly a rural, residential, somewhat agricultural community. Most of its working residents commute out of town. Others are engaged in home occupations or home-based businesses. This plan continues to recognize the importance of home occupations and home-based businesses, and supports the continuation of relevant provisions for such uses in the Greenfield Zoning Ordinance. In addition, all reasonable efforts to support existing businesses and attract new business are encouraged.

### **Traffic and Transportation**

Greenfield's road network is long established; virtually every road in use in town today has been in existence for the better part of the century or longer. The analysis of the transportation system, both in and around Greenfield, does not identify any particular problems that require either dramatic changes in the way roads are improved and maintained in town, or the construction of any new roads. Specific problems have to do with the needed replacement of 83 culverts throughout the town that are deficient for a variety of reasons. The Town is in the process of applying for the necessary wetland permits to begin this work.

Any potential impacts on the local road network will be the result of increased population since Greenfield is mostly a residential community. As mentioned previously, Greenfield does have three roads that are classified as Major Collectors, which are designed to move medium traffic volumes at low speeds between or within communities, so the Town may experience an increase in through traffic, especially truck traffic which can be heavy at times presently. Based upon the population statistics, the Town is not expected to experience any significant population increase (approximately 1.5 percent annually) that would unduly impact the road network.

Nevertheless, development in remote or inaccessible areas of town should be monitored and discouraged or prohibited, where appropriate. Applications for building permits on Class VI roads is a good case in point, where even low density minor development can create problems for the Town if the road network is not able to accommodate traffic. Further, the Planning Board should closely scrutinize all development proposals to determine their possible impact on the roads in the area, and the ability of the Town to adequately maintain them. The Selectmen may wish to consider the adoption of a Road Policy that would provide guidance to them and the Planning Board during an application review process.

A technology available to road agents to help in evaluating local roads is called the Road Surface Management System (RSMS). It was created by the Technology Transfer Center of the University of New Hampshire. The system provides a means to visually inventory and evaluate a number of various road surface problems such as surface cracking, inadequate drainage, etc., and then factors in costs of repairs and approximated traffic volumes for each road. The results of the visual inventory, cost, and traffic factors are then tabulated through the use of the RSMS computer program in order to create a priority list of road improvements. The Selectmen and the Road Agent might consider using this methodology to aid them in planning future road improvement projects.

## Housing

There are two primary functions of the Housing Analysis: (1) respond to the statutory requirement that local master plans address current and future housing needs of residents at all income levels; and (2) guide the location of development, while at the same time minimize impacts of the development not only on the character and environment of the Town, but also on Town services and facilities. In addressing the first function, that of the statutory requirement, reference here is made to two documents - the Regional Housing Needs Assessment, and the Greenfield Zoning Ordinance.

In 1988 the New Hampshire Legislature amended RSA 36:47, making it a requirement that all regional planning commissions undertake a regional housing needs assessment. The study was intended to indicate whether individual towns within the region are providing their fair share of housing for low- and moderate-income residents.

The Southwest Region Planning Commission conducted such a study in 1989. This study was partially updated in 2002; however, there is a need to revisit the basic assumptions and types of data that were deemed appropriate for the methodology. There is general consensus today that the methodology for this study should be revisited prior to a complete update. One fairly critical factor was not taken into account in the study, and that is the opportunity afforded by a town's zoning ordinance to develop a variety of housing types. Examination of the Greenfield Zoning Ordinance reveals the following provisions relative to housing opportunity:

- ◆ Single family homes are permitted by right in all districts.
- ◆ Duplex dwellings are permitted in the General Residence District.
- ◆ Multi-family units (up to 4 units) are permitted in the General Residence District. Multi-family units (up to 25 units, only for HUD-eligible elderly) are permitted in the Business District.
- ◆ Manufactured housing is permitted in the General Residence District.
- ◆ Accessory Apartments are permitted by Special Exception in the Business and Village Districts.
- ◆ Backlot development is permitted in the Village, General Residence, and Rural/Agricultural Districts subject to certain conditions.
- ◆ Elderly housing is permitted in all districts subject to Special Exception approval by the Board of Adjustment.
- ◆ Cluster development is currently not a development option in the Town of Greenfield.

Based on this review of the zoning ordinance, it appears that there are provisions for the development of a variety of housing types to meet a range of income levels and needs, including special needs of the elderly. The establishment of provisions for accessory apartments increasingly provides a means for the elderly to stay in their homes - either by renting the

apartment for income or for services in kind, or by moving into the apartment and renting the larger house.

Additional opportunity for the elderly can be provided through the inclusion of congregate housing for the elderly as a permitted use in the zoning ordinance. This type of housing allows many senior citizens a place to live with others who, for various reasons can no longer manage on their own, but are not in need of nursing care.

Municipalities use various methods to guide residential development - from complete prohibition in designated areas to the administration of performance standards for construction. In Greenfield, as in most New Hampshire towns, the customary approach has been to allow residential development in all areas of town, subject to certain conditions or the meeting of certain standards. For example: no construction is allowed in a wetland; driveways, septic systems and building sites must conform to set standards; and development around shorelands must be in conformance with state regulations. Attempting to limit the location of development based on information such as that on the *Development Constraints Map* is impractical, due to the scale and general margins of error in mapping of this type. Rather, maps such as these can indicate where (or where not) one might expect problems, and regulate accordingly. This allows each site to be developed based upon its particular characteristics, as determined by on-site examination.

### **Conservation and Preservation**

The Photo Exercise conducted for this Plan showed that conservation and open spaces are very important to the residents of Greenfield. Preserving critical open space areas is vital to maintaining not only the environmental health of Greenfield, but also the natural identity and recreational opportunities that are so closely connected to the Town. Quite a bit of land is already protected in some fashion, either through public or private conservation efforts, or deed restrictions. This plan recommends continued support of the efforts of the Conservation Commission to preserve and protect significant and sensitive lands and water bodies in Greenfield.

## **III. ADMINISTRATION AND IMPLEMENTATION**

The Future Land Use Plan set forth in this document and its accompanying maps envisions a comprehensive program for the Town of Greenfield to direct the development of the Town in an orderly and thoughtful manner. Unless the proposed goals, policies, and objectives are adopted and implemented, the Plan will probably not accomplish its purpose.

The term "administration" refers here to those activities that direct and manage the Town's municipal affairs. Greenfield is administered by a three-member Board of Selectmen. The Town Meeting is the legislative body of the Town, and the Selectmen represent the executive, or administrative, arm of that body. In addition to the Selectmen, other local boards participate in municipal government, i.e., the Planning Board, Board of Adjustment, Conservation Commission, and other appointed entities. This form of government relies heavily on part-time officials serving in a wide range of capacities. Some of these functions relate directly to the goals, policies, and objectives of this Master Plan, others less so.

The Future Land Use Plan contains three levels of planning components:

1. Broad, general goals to be followed for the Town's future development.
2. Policies related to the Basic Studies in:

Land Use	Community Facilities
Economic Development	Traffic and Transportation
Housing	Open Space and Preservation
3. Specific objectives for action that will help the Town achieve the goals and policies.

Implementation of the goals, policies, and objectives can be accomplished in a number of ways; some items would require no more than official endorsement by the Selectmen. Others, however, would require amendments to the zoning ordinance and/or the Subdivision and Site Plan Review Regulations in order to be realized.

### **Purpose**

The purpose of this Plan is to make and document recommendations for the desirable development of the community, including:

- ◆ Streets and transportation facilities.
- ◆ Location of public buildings, properties, and utilities.
- ◆ A zoning plan for control of the uses and siting of private, commercial, and public structures, and of population density.
- ◆ Steps necessary to preserve valued features, clean water, and a safe environment.

The Plan provides guidance for the accomplishment of coordinated and harmonious development in order to promote:

- ◆ Health, safety, convenience, prosperity, and general welfare.
- ◆ Efficiency and economy in the process of development.
- ◆ Good civic design.
- ◆ Wise and efficient expenditure of public funds.

Today, southern New Hampshire is experiencing rapid and accelerating growth. Predictions are that Greenfield's population will increase by approximately thirty percent over the next twenty years. How this will affect Greenfield's land, natural resources, housing, and town services is a serious concern of residents. Only by a comprehensive planning effort, can all of these factors be taken into account to preserve Greenfield as the town its citizens want it to be.

The collection of studies, maps, and reports accompanying this plan represents a data-base from which to visualize long-range growth in Greenfield. By understanding past trends and future potentials, solutions to the problems of growth become clearer.

This Plan is intended not as an edict, but rather to serve as a guide for the community as a whole to use in shaping its future over a period of years to come. It is therefore sufficiently general to permit wide interpretation without damage to its basic intent, sufficiently flexible to allow modification as conditions change, and reasonable enough to encourage good, enforceable legislation with due respect to the rights of all.

The Master Plan is not a town regulation, and has no power in law. However, if well-framed and practicable, it should suggest laws, regulations, or ordinances which may serve to carry out its prime purposes. It does not embody solutions to all municipal problems; rather it is a guide to aid town officials in attacking these problems. Unless it is understood and used, unless it is consulted often and amended when necessary, it will be of little value to the Town's future generations.

### General Policies

1. Protect the health, safety, security, and welfare of all inhabitants of Greenfield.
2. Accommodate growth and development in such a manner as to preserve and enhance the rural character, charm, and visual appeal of Greenfield.
3. Assure that development occurs in an orderly, progressive manner, considered in relation to its impact on the services and economy of the Town.
4. Assure that the Town's government is conducted in an efficient and economical manner, and in the best interest of its citizens.
5. Encourage the greatest possible public awareness and citizen participation in Town affairs.
6. Encourage cooperation and coordinate planning efforts with surrounding communities.

### Land Use

**GOAL:** *Promote land use activities that accommodate the needs of the residents of Greenfield while at the same time protect and preserve the natural, cultural, scenic, and historic resources of the Town.*

**POLICIES :**

1. Ensure that Greenfield has a diverse mix of residential, recreational, agricultural, commercial and light industrial uses consistent with the goals, policies and objectives of this Master Plan.
2. Ensure that the downtown area allows for a mix of residential and commercial uses, to include mixed use buildings.
3. Ensure that development occurs at a rate consistent with the capability of the land to support it and the Town's ability to provide services.
4. Balance new development with protection of Greenfield's sensitive and significant natural, cultural, and historic resources.
5. Ensure that telecommunications facilities have the least possible visual and environmental impact, while providing adequate opportunity for these facilities.

6. Ensure the use of Best Management Practices (BMPs) for storm water runoff.
7. Encourage the use of shared driveways and interconnecting driveways between developments where feasible.

**OBJECTIVES :**

1. Assess each subdivision and site plan proposal regarding the scale and location of the proposed development in order to evaluate impacts on the Town. PLANNING BOARD
2. Review the Zoning Ordinance on an annual basis, in conjunction with the other Town Boards, to ensure that it reflects goals and objectives of the Master Plan and meets the needs of current local conditions. PLANNING BOARD, CODE ENFORCEMENT OFFICER
3. Review and amend the zoning ordinance as necessary to ensure that “sprawl development” is minimized and mitigated. PLANNING BOARD
4. Ensure, to the greatest degree possible through local regulations, that telecommunications facilities be camouflaged, or hidden in or on existing structures. PLANNING BOARD, CODE ENFORCEMENT OFFICER
5. Promote innovative development concepts such as conservation subdivision, planned residential and/or open space (cluster) developments which encourage variety in residential architecture and landscape design, in conjunction with the preservation of open space and critical resource areas. PLANNING BOARD, CONSERVATION COMMISSION
6. Explore the use of Historic District designation pursuant to RSA 673:4. SELECTMEN
7. Explore the requirements and methods for growth management strategies pursuant to RSA 674:21 and 22. PLANNING BOARD
8. Amend the Subdivision and Site Plan Review Regulations to require the use of Best Management Practices (BMPs) for storm water runoff. PLANNING BOARD
9. Create a set of Design/Architectural Guidelines to include provisions for shared driveways and interconnecting driveways between developments. PLANNING BOARD
10. Amend the Subdivision and Site Plan Review Regulations to require Site Specific Soil Mapping Standards. PLANNING BOARD
11. Amend the Subdivision and Site Plan Review Regulations with criteria for Developments of Regional Impact. PLANNING BOARD

**Community Facilities**

**GOAL:** *Ensure that residents of the Town of Greenfield have access to effective local services and facilities, and that the administration of local government is responsive*

*to the needs of the residents.*

**POLICIES :**

1. Coordinate the operations and expenditures of Town governance, through routine communication among department heads, in order to provide services in a cost-effective manner.
2. Support the buying or sharing of equipment, materials and/or services with other towns, as feasible.
3. Anticipate the demands that new growth will place on Town services and facilities, and plan accordingly.
4. Locate community facilities in the downtown area, design such facilities to reflect traditional character, and encourage the re-use of existing structures/lots rather than developing “greenfield” sites for public uses.

**OBJECTIVES :**

1. Conduct an annual review of municipal operations. SELECTMEN, DEPT. HEADS
2. Ensure adequate staffing and support for municipal government regarding maintenance of infrastructure and facilities, including training and establishing “best practice” procedures. SELECTMEN
3. Develop and implement annual and long-range plans for all departments of municipal government regarding the administration and duties of each department. SELECTMEN, DEPT. HEADS
4. Routinely analyze the need and opportunities for the future addition and/or expansion of municipal services and facilities with public input. SELECTMEN, PLANNING BOARD, DEPT. HEADS, PUBLIC INFORMATION MEETINGS
5. Maintain a municipal Capital Improvements Program with a minimum planning horizon of six years. PLANNING BOARD

**Economic Development**

**GOAL:** *Promote Economic Development in Greenfield as a way to Protect and Enhance the Town's Quality of Life in a manner consistent with the Master Plan and Greenfield's history.*

**POLICIES :**

1. Create and maintain a balanced tax base by increasing the overall commercial and industrial base to reduce the tax burden borne by individual property owners.
2. Promote a wide range and number of local employment opportunities.

3. Increase educational opportunities for Greenfield residents to promote a more educated work force.
4. Encourage home occupations and home-based businesses.
5. Encourage agricultural businesses.
6. Enhance the appearance and economic vitality of the Downtown by upgrading its public infrastructure and encouraging fuller utilization of more Main Street properties.
7. Ensure that adequate public and private infrastructure is in place to support economic development in Greenfield.
8. Ensure the housing stock and residential development opportunities in Greenfield support Greenfield's economic development goals.
9. Recognize the essential role that telecommunications plays in today's economy.
10. Promote the development of tourism-based businesses, including re-activation of the Bennington-Milford rail road for excursion trains.

**OBJECTIVES:**

1. Support the Economic Development Authority in activities consistent with the goal, policies and objectives of this Master Plan. PLANNING BOARD, SELECTMEN
2. Continually monitor the Zoning Ordinance to ensure that it reflects the changing nature of home occupations and businesses. PLANNING BOARD, SELECTMEN, CODE ENFORCEMENT OFFICER
3. Investigate establishing an agricultural overlay district that would favor agricultural uses over other land uses, through the regulation of lot sizes, buffering, sales of agricultural products, etc. PLANNING BOARD, SELECTMEN, CODE ENFORCEMENT OFFICER
4. Investigate the use of Tax Increment Finance District(s) as a way to fund infrastructure investments that support Greenfield's economic development goals. PLANNING BOARD, SELECTMEN, ECONOMIC DEVELOPMENT AUTHORITY
5. Encourage formal municipal-level participation in - regional economic development organizations, such as Monadnock Business Ventures, Inc. SELECTMEN
6. Develop a program for the design, production and distribution of high-quality informational materials that describe the benefits of locating a business in Greenfield. ECONOMIC DEVELOPMENT AUTHORITY
7. Evaluate parcels town-wide to identify sites suitable for future industrial and/or commercial development. Consider any rezoning, as necessary. ECONOMIC DEVELOPMENT AUTHORITY, CONSERVATION COMMISSION, PLANNING BOARD

8. Review zoning and other land use regulations of neighboring towns annually to assure that Greenfield's industrial/commercial zones can accommodate the same businesses as the towns Greenfield competes with for new businesses and industries. PLANNING BOARD, ECONOMIC DEVELOPMENT AUTHORITY
9. Develop partnerships between regional educational institutions and local businesses to develop training and re-training programs to build appropriate skills for employment in the local economy. ECONOMIC DEVELOPMENT AUTHORITY
10. Improvements of municipal facilities, infrastructure or services or other publicly funded activity as may be recommended by the Economic Development Committee should be taken under consideration in the development of the Town's Capital Improvement Program. SELECTMEN, PLANNING BOARD
11. Provide for certain non-residential uses to be permitted by special exception outside of the village area. The criteria would address such issues as adjacent properties, noise, traffic, parking, signage, environmental impacts, etc. PLANNING BOARD, ECONOMIC DEVELOPMENT AUTHORITY, CONSERVATION COMMISSION

### **Traffic and Transportation**

**GOAL #1:** *Ensure that the transportation system in and through the Town of Greenfield functions as efficiently as possible.*

#### **POLICIES :**

1. Develop a transportation system/network that supports alternatives to motorized modes of travel.
2. Establish standards of construction, maintenance and improvements that balance the need for safety on the highways with residents' concern for maintaining a rural atmosphere.
3. Coordinate management of the transportation system within the Town of Greenfield with Regional travel and development trends.

#### **OBJECTIVES :**

1. Provide for pedestrian walkways wherever warranted by traffic and development.
2. Create a pedestrian-friendly Downtown, through the development of pedestrian and bicycle facilities and the management of motorized-traffic behavior.
3. Ensure, through site plan review, that adequate off-street parking is provided for in all future developments and that future parking for downtown properties is designed in coordination with existing parking. PLANNING BOARD, ECONOMIC DEVELOPMENT AUTHORITY
4. Use the State of New Hampshire's Transportation Enhancement Program (through the auspices of the Southwest Region Planning Commission) to fund future

Downtown improvements. SELECTMEN, PLANNING BOARD

5. Ensure long-range planning for the maintenance of all Town roads and bridges. SELECTMEN, ROAD AGENT
6. Evaluate the road standards in the subdivision regulations to ensure the development of safe roads without creating urban or suburban community character. PLANNING BOARD, ROAD AGENT
7. Establish standards of design and operating procedures for the maintenance, improvement and construction of municipal roads to protect the rural character of Greenfield while providing safe efficient road network, including protection of roadside trees, preventing destruction of stone walls and minimizing roadway width, and changes in radius of vertical and horizontal curves. SELECTMEN, ROAD AGENT, CONSERVATION COMMISSION
8. Enforce the statutory procedures and standards for the maintenance, improvement or other changes to Scenic Roads in Greenfield, pursuant to RSA 231:158, II. SELECTMEN, CODE ENFORCEMENT OFFICER
9. Support the continued participation by the Town in the Transportation Improvement Program planning process carried out by the Southwest Region Planning Commission and State of New Hampshire. SELECTMEN, ROAD AGENT, PLANNING BOARD

## **Housing**

**GOAL:** *Ensure that adequate, safe, and sanitary housing for all existing and future residents is achievable in Greenfield.*

### **POLICIES :**

1. Implement and administer the land use regulations so that there are no regulatory barriers to the provision of a range of housing types in a variety of price categories.
2. Support the preservation and maintenance of the existing and future housing stock through public and private actions.
3. Encourage the private sector to remove or rehabilitate all substandard housing.
4. Support the development of adequate elderly housing.

### **OBJECTIVES :**

1. Periodically conduct a housing inventory within Greenfield, including characteristics such as the number of single and multi-family houses; the age and condition of houses; trends in the area real estate market; and rental versus ownership rates. SELECTMEN, PLANNING BOARD, ECONOMIC DEVELOPMENT AUTHORITY
2. Assess the impact of regional development and land use regulations in neighboring

towns on housing demands for Greenfield. PLANNING BOARD, ECONOMIC DEVELOPMENT AUTHORITY

### **Conservation and Preservation**

**GOAL #1:** *Balance new development with protection of the Town's sensitive and significant natural, cultural, and historic resources.*

**POLICIES :**

1. Preserve and protect agricultural lands and environmentally sensitive lands to enhance the open space characteristics of the Town.
2. Develop natural feature overlay zoning districts that can prevent or minimize development activity that could be harmful to environmentally sensitive areas.
3. Promote good stewardship of forested private land through public education regarding the benefits to the owners and the community of forest management, and professional and technical resources available to land owners for forest management.
4. Support the development of long-range plans for the various large tracts of forestland, in preparation for any potential change in ownership.

**OBJECTIVES :**

1. Promote the connection of the publicly owned trail system to the regional trail network. CONSERVATION COMMISSION
2. Adopt a Floodplain Development Ordinance. PLANNING BOARD, CONSERVATION COMMISSION
3. Explore the use of an Aquifer Protection District Ordinance, or a Groundwater Protection Health Ordinance. PLANNING BOARD, CONSERVATION COMMISSION
4. Explore the use of a Shoreland Protection District Ordinance, or Surface Water Resources Protection Overlay District. PLANNING BOARD, CONSERVATION COMMISSION
5. Develop and maintain an Open Space Plan for the Town of Greenfield. PLANNING BOARD, CONSERVATION COMMISSION, SELECTMEN
6. Establish a Conservation Reserve Fund to support public activities such as the acquisition of easements for land conservation or trail access and the acquisition of real property for conservation or multiple uses. CONSERVATION COMMISSION
7. Adopt Conservation Subdivision regulations. PLANNING BOARD, CONSERVATION COMMISSION

**GOAL #2:** *Strive to improve the aesthetic quality and visual impact of the man-made environment as well as preserve and enhance the attractive visual features of the natural environment.*

**POLICIES :**

1. Protect the scenic elements of the Town's natural environment such as steep slopes, hilltops, waterbodies, streams, rivers, and viewsheds.
2. Encourage the use of aesthetically pleasing landscaping practices to enhance the visual quality of the man-made environment. In appropriate cases, the Planning Board may request landscaping plans to be submitted as part of development applications.
3. Encourage the underground placement of utilities when and where practical; and when underground placement is not practical, utilize design and landscaping techniques to blend such facilities with the natural environment to minimize their obtrusiveness.
4. Encourage aesthetics and attractive designs of signs in terms of number, type, size and location.

**OBJECTIVES :**

1. Consider the adoption of a Steep Slopes Ordinance. PLANNING BOARD
2. Consider the adoption of a Scenic Viewshed Protection Ordinance. PLANNING BOARD
3. Review the Town's existing Sign Ordinance. PLANNING BOARD, CODE ENFORCEMENT OFFICER

The Greenfield Planning Board hereby certifies that the preceding document adopted on June 2, 2003, is the true Master Plan of the Town of Greenfield, New Hampshire and was prepared and adopted in accordance with the provisions of RSA 674:2-4, 675:6, and 675:7.

Marilyn Fletcher, Chair \_\_\_\_\_

Robert Marshall, Vice-Chair \_\_\_\_\_

Jean Cernota, Secretary \_\_\_\_\_

George Rainier, Selectman \_\_\_\_\_

Michael Kavenaugh \_\_\_\_\_

Donald Winslow \_\_\_\_\_

John Hopkins \_\_\_\_\_

Certified on June 23, 2003